Determinants of exports in Zambia's Manufacturing Sector

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by

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ABSTRACT

The cyclical price movements of primary products exported from Zambia has placed the country at a disadvantage. This stems mainly from the fact that lower prices of primary commodities have had negative effects on the balance of payments and the developmental agenda of the Zambian government. It is therefore important that efforts are made by the government to move towards supporting product sophistication, primarily focusing on the growth of industries that offer the greatest possible impact. In this regard, the growth of the manufacturing sector becomes of the utmost importance. This is mainly because the more the manufacturing sector is developed, the greater the technological transfer which will in turn facilitate product sophistication. This will also mitigate the dependency on exports of primary commodities such as copper, and make the economy less susceptible to cyclical price movements of primary commodities. It was therefore important that the study investigated the determinants of export performance in Zambia's manufacturing sector. Variables analysed included Foreign Direct Investment (FDI), inflation rate, exchange rate, Gross Domestic Product (GDP) and lending rates. The study utilised the Ordinary Least Square (OLS) and the Auto Regressive Distributive Lag techniques to capture the dynamic relationships. The results revealed that Inflation and FDI were statistically significant. It was further observed that inflation was negatively related to exports in manufacturing sector. FDI, on the other hand, was positively related to exports in the manufacturing sector in the long run. GDP and lending rates were statistically insignificant, which could be as a result of the openness of the economy and low productive capacity. One of the key recommendations made was for government to effectively manage its policies in a way that maximises FDI inflows, whilst minimising inflation to effectively create a favourable macroeconomic environment for the sustained growth of the manufacturing sector. It was further observed that FDI, GDP and Inflation rate jointly affected exports in the manufacturing sector, therefore confirming that the three variables do have a joint effect on exports in the long run.

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GLOSSARY OF TERMS

ADF	Augmented Dickey Fuller
AIC	Akaike's Information Criterion
ARDL	Auto Regressive Distributed Lag
BoP	Balance of Payments
BoZ	Bank of Zambia
CEEC	Citizens Economic Empowerment Commission
COMESA	Common Market for Eastern and Southern Africa
CSO	Central Statistics Office
CTI	Commercial Trade and Industrial Policy
DTA	Double Taxation Agreement
EAC	East African Community
FIML	Full Information Maximum Likelihood
FDI	Foreign Direct Investment
FPE	Final Prediction Error
FTA	Free Trade Area
GDP	Gross Domestic Product
GoZ	Government of Zambia
HIPC	Highly Indebted Poor Country
HQIC	Hannan and Quinn Information Criterion
LDCs	Least Developed Countries
MFEZ	Multi-Facility Economic Zone
MCTI	Ministry of Trade Commerce and Industry
MIGA	Multilateral Investment Guarantee Agency
MSME	Micro Small and Medium-Enterprises
NTB	Non-Tariff Barriers
NTE	Non-Traditional Exports
OLS	Ordinary Least Squares
PMG	Polled Mean Group
REC	Regional Economic Community
RSNDP	Revised Sixth National Development Plan
SADC	Southern Africa Development Community
SAP	Structural Adjustment Programmes
SBIC	Schwarz's Bayesian Information Criterion
SACU	Southern African Customs Union
SEZ	Special Economic Zones
SITC	Standard International Trade Classification
SME	Small and Medium Enterprises
SSA	Sub-Saharan Africa
STR	Simplified Trade Regime
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
VAR	Vector Auto Regressive
VECM	Vector Error Correction Model
VIF	Variation Inflation Factor
WDI	World Development Indicators
ZDA	Zambia Development Agency

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CHAPTER ONE

INTRODUCTION

1.1 Background

The government uses various forms of financing mechanisms to fund its development agenda. Chief amongst these approaches includes the use of taxes. Whilst taxation plays a key role in raising the necessary revenue for economic activities, this raises significant tax burdens on the population. In this regard, governments have been utilising other development financing methods, including export revenues to support economic progression. The resources raised are used in several ways, including enhancing the infrastructure and productive capacities of the country. It is believed that the more a country exports its goods and services, the greater the technological transfer leading to greater productivity and product sophistication. The spiral effects of this will lead to enhanced export revenues, poverty alleviation and economic development.

In this regard, export revenues play an important role in development finance as an effective source of resources for developmental programmes in both developing and developed countries. It is believed that various economic dynamics, such as enterprise development, macro-economic stability, diversification, value addition, etc, must be addressed to realise sustainable growth of exports.

Over the last decade, Zambia has continued to make progressive steps towards realising its vision of becoming a prosperous middle-income country by 2030. Crucial to this has been the need to maximise regional and international trade opportunities. It is important to note that export growth in Zambia has mainly been driven by increased copper production. The Government of Zambia (2016) argues that Zambia remains one of the top producers of copper in Africa, producing on average 808,000 tonnes per annum, only second to D.R Congo, which produces about 980,000 tonnes on average per annum. It is important to note that although

production has been high over recent years, this has not translated into better living standards of the ordinary Zambian people, with rural poverty estimated as 76% (World Bank, N.D)[1].

Copper exports contribute over 70% of export earnings. This heavy reliance on copper production has seen the country receive massive investment in this sector, without really improving value addition in productive sectors. This has translated into a slow pace of development and industrialisation in the country. Given the low value addition of productive sectors, the reliance on copper exports tends to place significant balance of payment constraints on the economy, mainly because of the cyclical nature of export prices. Because of the lack of predictability of price movements, the government tends to implement contractionary fiscal policies. These policies tend to limit the potential growth of local demand, and therefore lead to slower growth of the economy.

To address the growing dependence on copper exports, the Zambian government has been actively putting in place policies to strengthen other industries within the economy, such as agro-processing, manufacturing and services sectors. This included the introduction of Multi-Facility Economic Zones (MFEZ), liberalisation of services sectors and investment in infrastructure, to mention just a few. The deliberate actions of the government are aimed at strengthening and diversifying the export capabilities of the economy.

Given the potential impact that can be derived from export-led growth strategies, it can be noted that both developed and developing countries are now pursuing export-led growth strategies to enhance value addition, poverty alleviation and strengthen industrialisation.

While Zambia's industrial base has continued to grow steadily over the years, the manufacturing sector has the potential to drive industrialisation by maximising the many potential backward and forward linkages within the production and supply chains, thereby significantly increasing exports. This study therefore aims to examine the main determinants of export performance in Zambia's manufacturing sector. The study should feed into decision making of government, as the country embarks on industrialisation and diversification paths.

[1] http://web.worldbank.org/

1.2 Problem Statement

When Zambia gained its independence in 1964, it was amongst one of the most prosperous countries in Africa. This was against a background of the strong economic performance of the economy which mainly relied on copper exports. Though the economic environment was favourable, the country also inherited poor socio-economic policies, with high inequality and poor standards of living for the people (GoZ, 2014). In an attempt to address this, the government initiated the implementation of social measures. Despite the efforts of the government, the economy in the early 1970s took a downturn, with copper prices significantly lower than in previous years. This led to a decline of social welfare for people, due to the inability of the government to sufficiently provide services to its people. This downturn continued into the early 1990s.

In 1991, the country commenced the implementation of the infamous Structural Adjustment Programmes (SAPs) led by the International Monetary Fund (IMF). The SAPs facilitated for a liberalisation of the economy, and commenced the formulation and implementation of deliberate policies that aimed at strengthening the agricultural, manufacturing, services sectors, etc. By the late 1990s the country was gaining macroeconomic stability. Against these gains, the country began seeing some gradually growth, averaging 3.9% per annum by 1998 (GoZ, 2014).

The economic downturn of the 70s and 80s highlighted the negligence of the government on building the country's productive sectors through continued investment. It also highlighted the county's dependence on copper exports. Despite having an abundance of resources and past social-economic challenges, copper exports have remained the main economic activity and source of revenue for the country. To address this, the government has embarked on improving the productive capacities of the economy, focusing on private sector growth. This will ensure that the private sector remains in the driving seat of development. Sharma et al (2015) note that the strong forward and backward linkages in the manufacturing sector offer the most potential for industrialisation, poverty alleviation and economic growth.

It can however be noted that the manufacturing sector is, however, insufficiently developed to provide the needed diversification and product sophistication that has assisted developed

countries to industrialise and cushion the adverse impacts of global macroeconomic pressures. As such, more can therefore be done to ensure that the manufacturing sectors' contribution to GDP is enhanced. For instance, the government has continued to roll out the MFEZ approach in different urban areas. This is meant to assist companies with tax and duty rebates to enhance the competitiveness of their products. While such programs remain key to the development of exports in manufacturing sector for Zambia, the few companies that participate are foreign owned. In addition, the level of investment in the manufacturing sector has been limited to extractive industries like copper mining. This has generally left other industries like textiles, wood and wood products, agro-processing, chemicals, etc, underdeveloped. This tends to negate any indirect benefits that the manufacturing, agriculture and services sectors can benefit from in the forward and backward linkages available in the manufacturing sector.

The overall relationship between macro-economic indicators, such as GDP, exchange rate, inflation rate and lending rates are not considered when policies are being developed for the growth of the export sector. For instance, the government's continued borrowing on the international market has placed a debt burden on its people, and has negatively affected projected outputs, including growth rates, lending rates and exchange rates to a greater degree. It can be noted that following the launch of the US$ 750 million, US$ 1 billion and US$ 1.25 billion bonds in 2012, 2014 and 2015 respectively, average commercial bank lending rates reached a high of 44%; the exchange rate became less stable, thereby affecting investor confidence, and inflation rose from 6% to over 10% (Chalwe, 2017)[2]. It was further noted that the copper prices decreased in the same period, therefore placing significant debt repayment pressure and slowing the growth of the economy. Whilst the developmental projects initiated from these resources could potentially positively affect the growth of the manufacturing sector, the overall changes in the macroeconomic indicators, if not carefully factored into policies and financial decisions, would adversely affect the growth and development of key productive sectors such as manufacturing.

It is therefore important to examine the determinants of export performance in the manufacturing sector. This will help towards a more detailed review in implementing some government policies and strategies that could affect the growth of the sector.

[2] https://www.lusakatimes.com/2017/02/27/zambian-banks-charge-highest-interest-rates-region-need-reduce-interest-drastically/

The study will therefore be specifically answering the following research question:

What are the determinants of export performance in Zambia's manufacturing sector?

1.3 Research Objectives

Based on the above research question, the main objective of the study is:

- To examine the determinants of exports in Zambia's manufacturing sector.

1.4 Research Hypothesis

The study will aim to test the following hypothesis:

H_0: Key factors do not determine export performance in Zambia's manufacturing sector.
H_1: Key factors determine export performance in Zambia's manufacturing sector.

1.5 Significance of the Research

Several factors, including productivity costs, infrastructure development, ease of doing business, comparative advantage, among others, play a key role in defining a country's diversification efforts. Closely linked to these factors has been the need to focus on the development of the manufacturing sector to maximize the benefits of global trade. For instance, Singapore's rapid industrialization was mainly driven by the manufacturing sector, which improved national income and decreased unemployment (Perry, 1996). With a viable and sturdy base, the manufacturing sector is known for the high backward and forward linkages that can be optimized, as various inputs and outputs can feed to other sectors such as services, agriculture, tourism etc.

Zalk (2014) is, however, of the view that countries do not necessarily need to industrialize to develop, contrary to arguments posed by Perry (2016). This is mainly because as income increases within the economy, the proportion of contribution of sectors such as services to GDP and unemployment significantly increases. Zalk (2014), however, noted that industrialisation driven by growth in the manufacturing sector continued to be key in facilitating sustainable growth and development. It is therefore important that developing countries draw on lessons

learned by countries such as Brazil, China, Indonesia, Japan and Malaysia. These countries began their industrialization processes with a heavy focus on manufacturing expansion.

At the global level, manufacturing accounts for approximately 14% of employment and 16% of global GDP. It is, however, important to note that the manufacturing sector's contribution is highly dependent on its stage of development. Manyika et al (2012, p. 3) observed that as countries industrialise, "manufacturing employment and output both rise rapidly, but once manufacturing's share of GDP peaks at 20 to 35 % of GDP, its effect on employment and growth reduces". This is mainly because as wages increase, consumer expenditure diverts to services. As such, it is important that developing countries like Zambia strengthen their manufacturing base, as there is still potential for growth.

The policy recommendations from this study will be important in assisting the government to develop appropriate policies and strategies that centre around industrialisation with a focus on the manufacturing sector. The study will also contribute to the wide empirical literature on determinants of export performance in the manufacturing sector, focusing on the Zambian context. This will lead to a better appreciation of the potential variables that could affect export performance for an LDC country like Zambia.

1.6 Organisation of the Research

This dissertation is arranged by six (6) chapters. Chapter one (1) provides an introduction of the research area and outlines the problem statement and research objectives, including the appropriate research questions being answered. It also provides the underlying hypothesis and justification for undertaking the study. The second chapter contextualises the research by assessing the performance of the overall economy, trade and manufacturing performance. Chapter three (3) elaborates on the various theoretical and empirical literature sources on economic growth and trade performance, and reviews the various research gaps, using examples of both developed and developing countries.

Chapter four (4) details the research methodology utilised, focusing mainly on data sources, model specifications, study's analytical approach, the reliability and validity of the models used and limitations faced. Chapter five (5) discusses the findings obtained, and provides

explanations to possible deviations in the relationship amongst the variables, i.e. GDP, FDI, lending rates, inflation and exchange rates, and their effect on export performance of Zambia's manufacturing sector. It also includes a possible explanation of how these deviations occurred. Chapter six (6) provides the conclusions of the study policy implications and recommendations.

CHAPTER TWO

OVERVIEW OF THE PERFORMANCE OF THE ECONOMY OF ZAMBIA

2.1 Introduction

Zambia's economy has continued to grow from strength to strength over the past decade. On average, GDP growth between 2000 and 2014 was 6.9%. The highest average growth experienced was in 2010, with real GDP rates reaching 10.3%, as shown in figure 1.0 below.

Figure 1.0 GDP Growth

Source: Author's graph using IMF World Economic Outlook (WEO) data, April 2016

The growth could be explained by several factors, including the debt cancellation that was attained through meeting the Highly Indebted Poor Country (HIPC) targets in 2005. This allowed the government to focus its expenditures on the developmental agenda, as opposed to debt repayment. The impressive performance of Zambia's growth rate can also be attributed to the increased copper exports recorded over the period. Copper export revenues on average grew to about USD 3 billion per annum (GoZ, 2014).

The World Bank (2011) notes that although the real GDP growth reduced from 6.7% in 2013 to 5.6% in 2014, this was above the 4.4% GDP growth projected for most developing countries. Despite the growth rate, the AfDB (2016) notes that the proportion of population living in extreme national and rural poverty in 2015 was 61% and 78% respectively. Given the elevated level of extreme poverty at both national and rural level, the government has identified the

agricultural and manufacturing sectors as key sectors to drive industrialisation and poverty alleviation, due to the many linkages identified in the Revised Sixth National Development Plan (RSNDP) and the Commercial, Trade and Industrial Policy.

The Government of Zambia (2016) notes that the total outstanding external debt stock[3] increased by 39.6% to US$ 6,602 million at end-December 2015 from the US$ 4,729 million recorded at end-December 2014. The increase was mainly because of the US$ 1,250 million bond III disbursement, which accounted for 66.7% of the total increase. From the foregoing, the country's public external debt as a ratio of the nominal Gross Domestic Product (GDP) which was estimated at US$ 16,547 million as-at-end 2015, was 39.8%, a figure below the internationally accepted threshold of 40% for effective fiscal management. When domestic debt is included, the ratio of total public debt to GDP is 51%, a figure below the international threshold of 56% (GoZ, 2016). Although the public debt to GDP ratio remains within internationally accepted thresholds, the government needs to ensure that prudent fiscal and monetary measures are put in place to mitigate any risks of the debt burden growing to unsustainable levels. In addition, the Balance of Payments (BoP) deteriorated in 2015, with a deficit US$ 393.3 million in the current account. The financial account and the capital account recorded surpluses of US$ 278.3 million and US$ 81.0 million, respectively (GoZ, 2016).

2.2 Zambia's Regional Trade Agreements

The improved performance of GDP growth rate over the last decade could also be attributed to Zambia's increased trade liberalization efforts, at regional and international levels. The Zambian government has over the past decades implemented policies that have seen the gradual advancement in regional cooperation to facilitate regional and international trade. The government of Zambia has been an active member of the World Trade Organization (WTO) since its inception in 1995 (GoZ, 2016). This has facilitated for the enhanced trade negotiations in various sectors, including agriculture and trade in services.

Zambia is a member of Regional Economic Communities (RECs), such as the Common Market for Eastern and Southern Africa (COMESA) and the Southern Africa Development Community (SADC). These RECs provide an opportunity for Zambia to tap into vast regional markets

[3] Public and publicly guaranteed debt.

through implementation of progressive trade programs, such as elimination of Non-Tariff Barriers (NTBs), implementation of the Free Trade Area (FTA), Customs Union and the Simplified Trade Regime (STR), among others. These programs are aimed at enhancing the ease of movement of goods and services between member States, therefore allowing for trade development. The benefits of Zambia's Membership to these RECs, and particularly COMESA, has included access to a wide market, constituting over 500 million people, with a GDP of over US$ 800 million. In addition, the COMESA region provides wide opportunities for improved investment and employment creation, leading to poverty alleviation. Zambia and the rest of the African countries are now expected to join the continental FTA that will see additional opportunities for trade exploited.

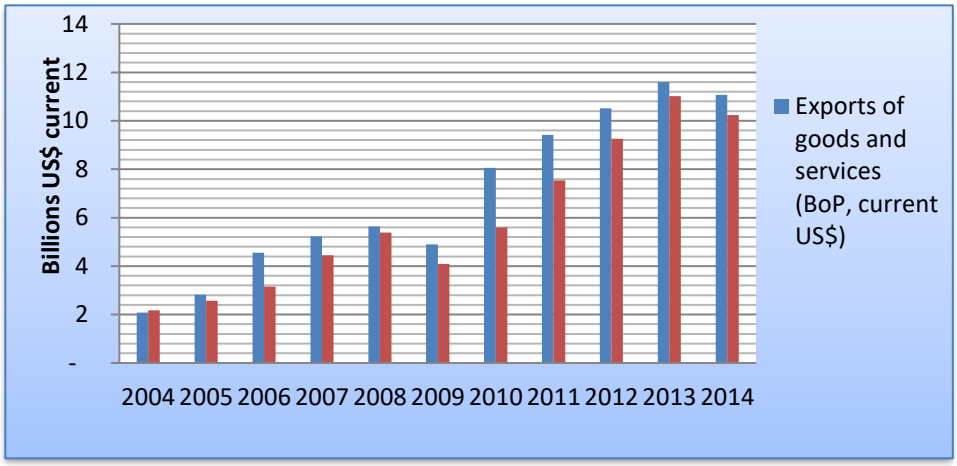
In addition, bilateral investment treaties have been signed and enforced with France, Italy, Mauritius and Netherlands among others (GoZ, 2016). Given that tax plays a key role in attracting FDI, the Government of Zambia has also signed bilateral Double Taxation Agreements (DTA) with Kenya, Mauritius, Seychelles and Uganda, among a few (GoZ, 2016).

2.3 Performance of Zambia's Export Sector

A quick glance of Zambia's trade performance as provided by figure 1.1 below reveals that Zambia's exports have steadily increased from US$ 2 billion in 2004 to over US$ 11 billion in 2014. Imports also grew from US$ 2.1 billion to US$ 10.2 billion in 2014. The slight decline of exports between 2008 and 2009 can be attributed to the global financial crisis of 2008 that significantly affected the demand of Zambia's copper exports. According to prices on the London Metal Exchange, Copper prices reached to a historic low of US$ 2,765 per tonne, further worsening export revenues for the country (LME, N.D)[4].

[4] https://www.lme.com/en-GB/Metals/Non-ferrous/Copper#tabIndex=2

Figure 1.1: Total exports and Imports

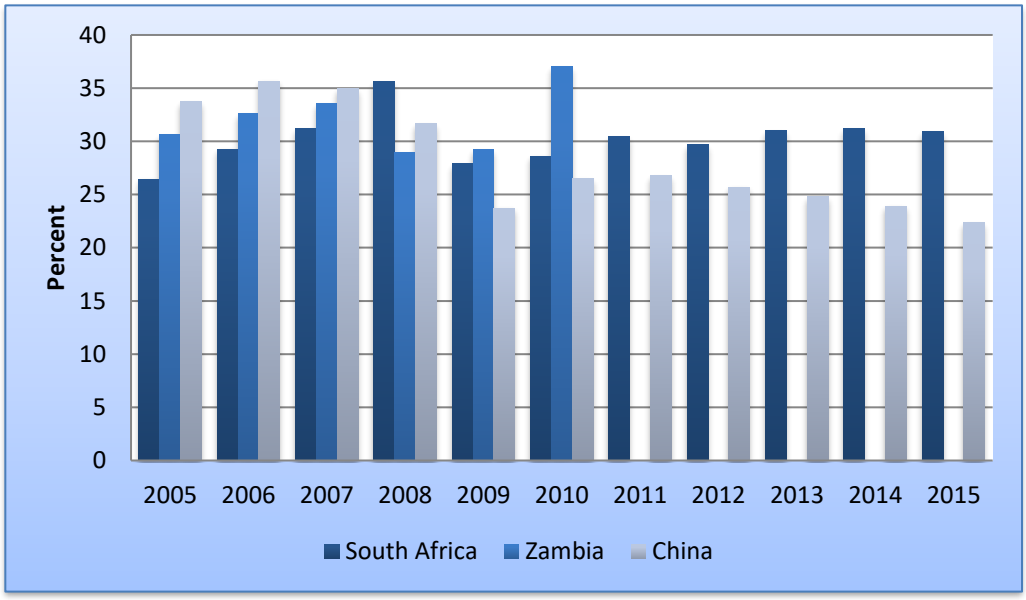


Source: Author's graph using IMF World Economic Outlook (WEO) data, April 2016.

It is important to note that South Africa and China represent two of Zambia's main trading partners. Comparing export contribution to GDP of these countries to that of Zambia's, we note that between 2005 and 2008, the average contribution of exports to GDP was 31%, and 34% for South Africa and China respectively. In addition, it should also be noted that Zambia had a larger contribution of exports to GDP in the years 2009 and 2010 at 29% and 37% respectively. This surge in contribution of exports to GDP could be attributed to exports of manufactured goods such as copper plates, refined copper and copper alloys, copper ores and concentrates and sheets and strips. The major recipients of these exports were Switzerland, China and South Africa (UN Comtrade Report)[5]. Figure 1.2 below illustrates this.

[5] *Retrieved at* https://comtrade.un.org/pb/FileFetch.aspx?docID=4043&type=country%20pages.

Figure 1.2: Exports as percentage of GDP for South Africa, Zambia and China



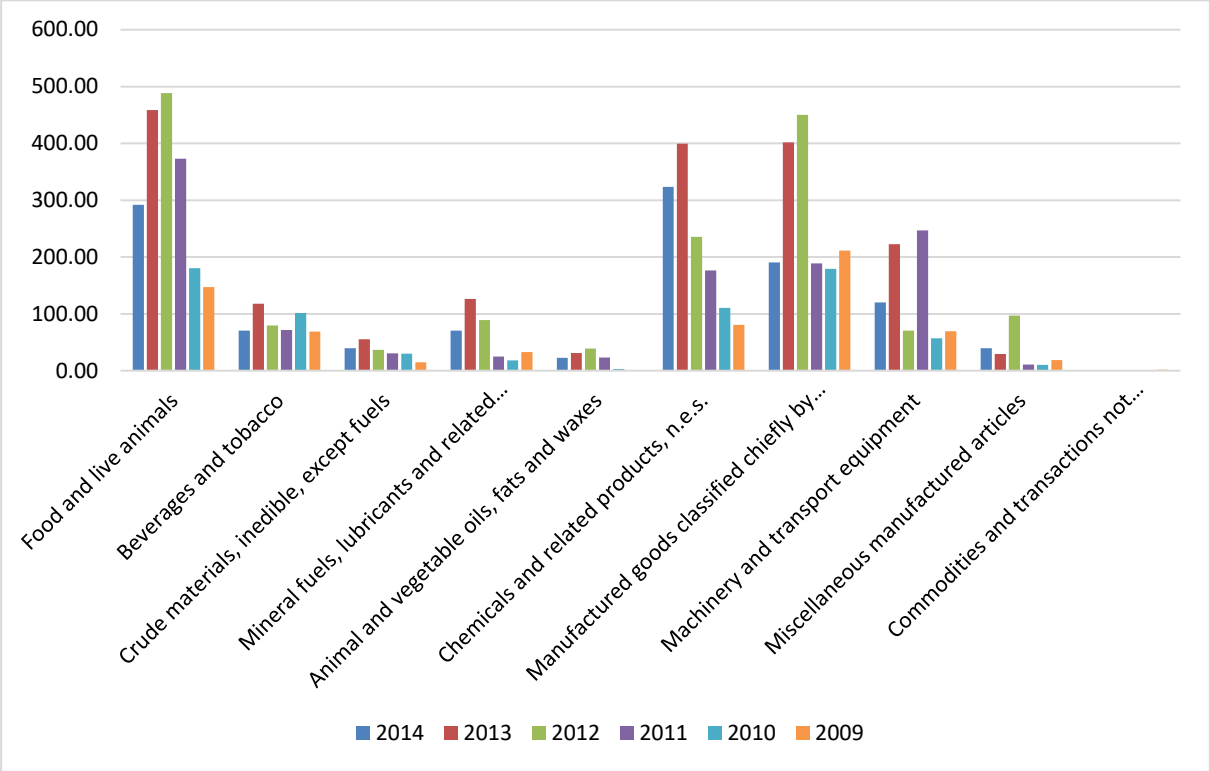
Source: Author's graph using WB World Development Indicator (WDI) data, August 2016

Although the contribution of exports to GDP was in similar ranges, the contrast in the levels of development is wide. We could therefore conclude that although increasing exports as a percentage of GDP is important, the country needs to focus on increasing exports in key sectors of the economy, such as manufacturing and agro-processing, to spur industrialisation, poverty alleviation and economic growth.

It should also be noted that the continuous growth of the economy has also seen the improvement in the export of Non-Traditional Exports (NTEs)[6] by Zambia to the COMESA region, as highlighted by figure 1.3 below. Between 2009 and 2014, we note that exports from chemicals and related products, manufactured goods, food and live animals have continued to steadily grow, with export revenues amounting to an average of US$ 814 million annually. According to the COMStat database, exports in manufactured goods grew from US$ 211 million in 2009 to US$ 450 million in 2012. The decrease in the export of manufacturing goods between 2012 and 2014 coincided with the increase in imports of textiles, which averaged US$ 60 million[7]. Other NTEs that have performed well on the regional and international markets have included cement, sugarcane and cotton exports, which net Zambia an estimated US$ 104 million annually (International Growth Centre, 2012).

[6] Non-Traditional Exports are defined as exports other than copper or cobalt.
[7] Comstat.comesa.int

Figure 1.3: Zambian exports by sector to the COMESA region US$ millions.



Source: Author's graph using COMStat data 2016.

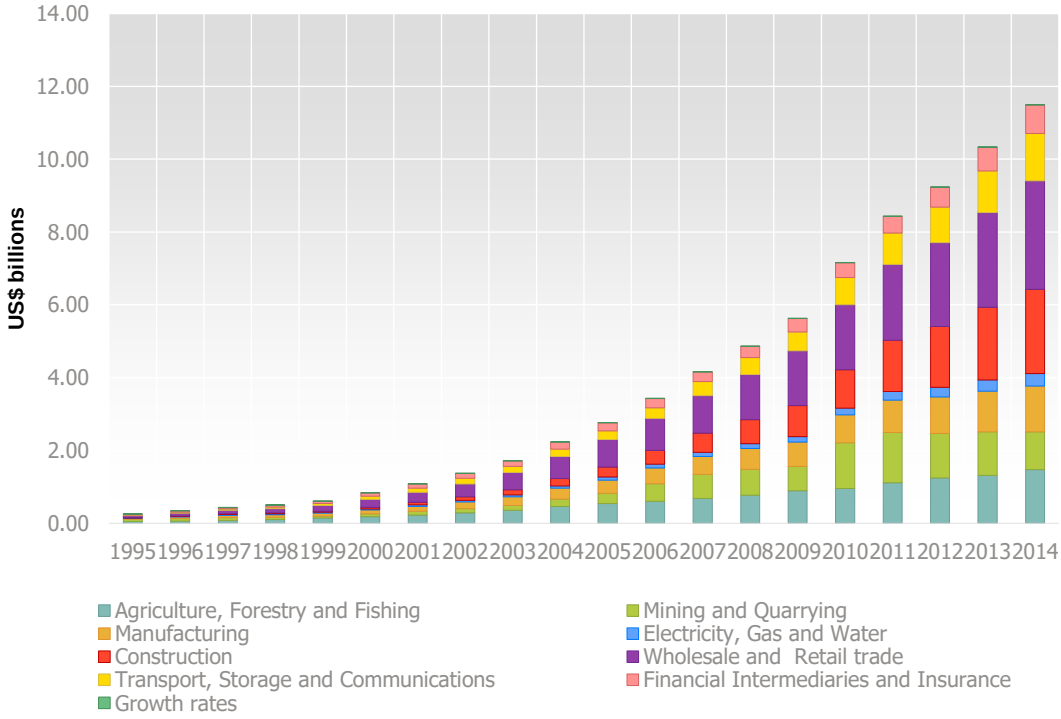
Figure 1.4 below highlights the contribution of economic sectors to GDP. It can be noted that between 2011 and 2014, the services sectors contributed the most to GDP, driven by the wholesale and retail sector. The second and third largest contributors have included the construction and mining sectors respectively. The growth of the construction sector has been necessitated by the need for improved infrastructure in the country. This has mainly been driven by the increased government spending on road infrastructure, through the implementation of programmes such as the link Zambia 8000[8] and other township programs. Not only is the project focused on infrastructure development, but it seeks to enhance job creation among the youth and contribute to creating growth and wealth development in rural areas (RDA, 2016). In addition, the private sector has also invested heavily in construction, be it in meeting housing needs or providing social amenities.

The manufacturing sector still lags, as the fourth economically important contributor to GDP growth in Zambia. This is despite progressive policies being implemented, such as the

[8] According to the Road Development Agency, the Link Zambia 8000 aims to improve the road infrastructure network within urban and rural areas to link the various productive sectors and markets within the country. The programme aims to link the various parts of the country to bigger markets within the region whilst reducing transit costs.

establishment of Multi Facility Economic Zones across urban areas and investment in physical infrastructure such as road networks, among others. The manufacturing sector has lagged because the sector has received less investment as compared to other productive sectors like mining.

Figure 1.4 Contribution to GDP per sector



Source: Author's graph using COMSTAT 2016

2.4 Performance of Zambia's Manufacturing Sector

Following independence, the manufacturing sector was mainly driven by copper exports, achieving an average growth rate of 12.6%. This growth was, however unsustainable, and was followed by a decline (GoZ, 2016). GoZ (2016) further notes that between 1964 and 1974, the share of manufacturing in total GDP rose from 6.3% in 1964 to 12% in 1974. The growth was mainly spurred on by heavy government investment in productive sectors, such as textiles, plastics and leather products, among others.

After 1974 the manufacturing sector grew marginally, but reached a high of 15% in 1991. The manufacturing sector growth slightly reduced in the years that followed, reaching 10.5% by 1999 (GoZ, 2016).

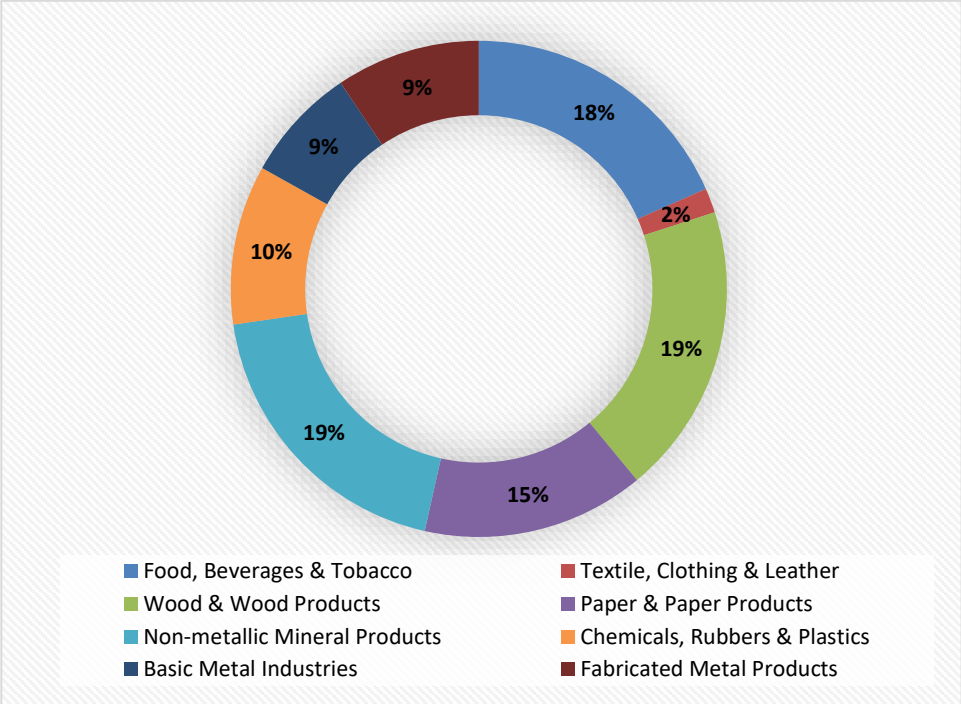
The Government of Zambia (2016) notes that the early development in the manufacturing sector was mainly attributed to the high copper export earnings. Even though copper exports represented the highest source of export revenue, the overall contribution to poverty alleviation is marginal.

The linkages between mining and manufacturing continued to grow stronger at the time the economy was liberalising in the early 1990s. It is believed that mining has had various impacts on the manufacturing sector in Zambia, including providing export revenues and strengthening market demand (GoZ, 2016). For instance, most of the mining imports are products of the manufacturing sector, and the mining output tends to feed into the manufacturing process.

While it is encouraging that Zambia's manufacturing sector continues to grow at an average of 4% per annum, this growth is well below the targeted growth of 25-30% recommended as the minimum growth rate to achieve sustainable sector growth. Greater efforts are needed to ensure that the growth is raised to over 25% if the country is to industrialise and effectively contribute to poverty alleviation.

The growth of the manufacturing sector over the last few years has mainly been driven by the following sub-sectors: wood and wood products (19%), Non-metallic mineral products (19%), and food beverages and tobacco sub-sectors (18%), as provided by figure 1.5 below. Export destinations of manufactured products have included the Democratic Republic of Congo and South Africa. This is mainly because of the large markets presented by these two countries. Other significant export markets outside Africa include China, Belgium, Netherlands and Switzerland (GoZ, 2016). The growth of the manufacturing sector in Zambia has mainly been hindered by continued imports of finished products, mainly from South East Asian countries, low productive capacities for value addition, low financing of MSMEs, macroeconomic variables such as inflation and exchange rate volatilities, just to mention a few (GoZ, 2014).

Figure 1.5: Composition of Zambia's manufacturing industry.



Source: Author's graph using CSO data

The non-metallic metal products (18%) chiefly represented by cement, lime and other building materials is further expected to contribute more to the growth of the manufacturing sector, due to the increased investment being made in the construction sector and further expansion in mining activities.

Deliberate measures are being put in place by the Government of Zambia to ensure that export potential is maximised, with a focus on manufacturing expansion. Some of the measures being implemented include development of road, energy and telecommunication infrastructure. In addition, the implementation of MFEZ is meant to spur on investment for exporting value added products. It can be noted that this has contributed to the growth of FDI inflows in the manufacturing sector increasing from US$ 257 million in 2006 to 1.6 billion in 2013 (COMStat database)[9]. Other measures being used include providing low interest loans through the Citizens Economic Empowerment Commission (CEEC) to small businesses, to increase their capacities. To supplement this, commercial banks are developing better risk assessment and mitigation

[9] Retrieved at http://comstat.comesa.int/FDIIS2016/fdi-inflows-by-sector

frameworks that will see better provision of loan facilities to Small and Medium (SME) businesses.

CHAPTER THREE
LITERATURE REVIEW

3.1 Introduction

The consensus amongst development proponents is that trade can play a key role in economic growth and poverty alleviation. This is mainly because the more a country trades, the greater the foreign revenue received, enhancing technological transfer and employment creation, which creates a multiplier effect.

This chapter provides a detailed discussion of both the theoretical and empirical literature on the relationship between exports and economic growth, and provides a discussion on drivers of exports by comparing developed and developing countries with a focus on African countries. It also identifies the research gaps, and further discusses how the study will contribute to the existing body of knowledge.

3.2 Theories of Trade and Impact on Economic Development

Several theories have been developed since the 18th Century to explain key trade theories. For instance, Adam's theory of absolute advantage was important for the development of international trade theory in the late 1700s. Adam's theory mainly centred around the notion that two countries could only trade if it benefited both nations. Adam was of the view that each country would therefore specialise their productions, which would in turn enhance their efficiency in the production processes. A key critic raised on the theory was that Adam failed to see that the potential gains for two countries trading with each other could be far greater than absolute advantage (Zang, 2008).

The theory evolved from absolute advantage to comparative advantage as put forward by David Ricardo in the early 1800s. Ricardo's theory postulates that "a difference in comparative costs of production is the necessary condition for the existence of international trade" (Zang, 2008, p. 5). As such, countries will trade with each other if one country has a comparative advantage over the other. One criticism raised against Ricardo's comparative theory is that it focused mainly on two countries trading with each other, which is far from accurate, as countries have multiple trading partners.

Additional theories such as the Heckscher-Ohlin theory were developed, and concluded that each country exports goods that are abundantly produced through use of available factors of production, and imports goods it produces less, using its factors of production. Mundra (2017) notes that a major criticism raised against this theory was that it assumes that relative factor prices reflect relative factor endowments, therefore placing significant importance to supply factors and less on demand factors[10]. However, it is noteworthy that demand factors also play a significant role in international trade.

Traditional classical theorists have been of the view that countries which are different trade more together. The theorists are therefore not able to explain why so many countries with similar labour costs, raw materials, industries etc. are able to trade with one another. This has provided fuel for new theories which argue that trade occurs based on economies of scale, product differentiation and perfect competition. The gravity model was presented in 1962 by Jan Tinbergen, which drew on analogy with Newton's Law of Gravity. The gravity model suggests that a country's economic size attracts trading partners, and the further the distances of these countries the less this attraction is (Economics online; 2018). The model analyses the relationships between economic size, market size, geographical distance and culture with trade. Most studies undertaken involving the gravity model have focused more on panel and cross-sectional data to assess the relationships of these variables on trade (Kepaptsoglou et al, 2010). This study will, however, make use of Ordinary Least Square (OLS) and Auto Regressive Distributed Lag (ARDL) techniques to assess the relationships of determinants of export performance in Zambia's manufacturing sector.

3.2.1 Exports and Economic Growth

Growth strategies have evolved from import substitution to export-led growth and finally to demand growth strategies over the years. These strategies were relied upon to bring about sustainable economic growth and development, relying mainly on the capability of the country to export or import goods.

10 https://internationaltrade.knoji.com/criticism-of-heckscherohlins-theory/

Import substitution is a growth strategy that focuses on eliminating imports, to produce them locally. It is believed that producing products locally that would otherwise have been imported would bring about structural transformation in a country. In this regard, countries that implemented import substitution policies and strategies tended to have several protectionist measures implemented to safeguard the growth of local industries. Drawing on the notions of self-sufficiency and economic transformation, a number of developing countries, including Latin American countries and African countries, enforced these policies in the 1940s to varying success. For instance, a study undertaken by Chandra (2003) notes that import-substitution model of growth for China was more appropriate, given the country's large domestic market.

The main criticism leveled against the import substitution strategy mainly relates to the fact that the increased local protection of industries led to bureaucracies and corruption in many of the companies, which were state owned at the time. This tended to discourage private sector investment and initiatives. In addition, the restricting of imports facilitated a higher exchange rate, therefore rendering export benefits minimal. The import substitution strategies also facilitated for increased imports of capital goods, which led to underutilization of capacities. Roy (1991) argues that implementing policies and strategies that encouraged import substitution meant overvaluing exchange rates and enforcing quotas, and this led to slow growth of export revenues.

Given the mixed success of import substitution, countries moved on to implement export-led growth strategies as the next best alternative strategy. Proponents of the export-led growth hypothesis argue that increasing exports of goods and services can promote economic growth and transformation in a country. This is mainly achieved through several ways, including: specialization and economies of scale, foreign exchange revenue and knowledge and technological transfers (Amed and Said, 2012). The technological transfer is expected to enhance innovation in the country and therefore increase product sophistication. Marin (1992, p. 679) is of the similar view and notes that the growth of exports has had positive externalities and impacts on the economies. This is mainly attributed to the international market access, innovation and technology spill-overs, among others.

The key elements of the export growth theory are hinged on integrating into the global economy, depreciated exchange rate, reduced expenditure on wages and social welfare. Palley (2012) is of the view that as countries export more, the greater the country attracts Multi-

National Corporations (MNCs). This would facilitate for greater investment through increased FDI inflows. This will increase competitiveness of products on the international market, and enhance the foreign revenue obtained.

Buffie (1992) and Marin (1992) all agree that exports can have a strong positive impact for all types of countries, whether developing or developed. It is for this reason that most countries are moving towards export orientated development strategies as a sustainable means of achieving economic growth and development.

Were et al (2002) note that Kenya is currently utilizing export growth strategies with the aim of industrialising. This is in recognition that exports could play a key role in enhancing sustainable growth and development for the country. This will mainly involve strengthening production capabilities and product branding, with a focus on the agro-processing sector. It is further noted that the export-led growth will provide the needed impetus beyond what openness can provide through progressive linkages.

The underlying assumptions noted by Roy (1991) and Palley (2012) are key in ensuring the successful implementation of export led growth theories for the benefit of economic growth and development. Any deviation from stable exchange rates could adversely hamper the growth of an industry. Several countries have recorded growth from the use of export-led growth approach; for instance, Turkey's policy shift to export led growth enhanced that country's export revenues substantially, and led to the country having such a strong and dynamic manufacturing base (Ozturk and Acaravci, 2010). In addition, Jinjun (1995) notes that the export-led growth strategy was highly beneficial for China, which recorded annual average GNP rate of 11.1% due to an average export growth of 14.8%. Some countries had, however, not enjoyed similar successes using this approach.

Ahmed and Said (2012) notes that the positive impact of export-led strategies has been limited in Pakistan, as compared to other countries. This is mainly because the country imports more than it exports, and as a result any shifts or changes in income lead to greater imports than exports. This creates persistent balance of payment constraints in the country.

The other criticism raised against the export-led growth approach mainly related to the fact that the export-led growth approach reduces the growth demand of the local economy, as outside

markets are prioritized. It is argued that export-led economies could adversely affect output, employment and national welfare (Palley, 2012). This is mainly because governments place more priorities to make goods competitive through provision of subsidies and incentives. In addition, a main underlying assumption is lower labour costs that are mainly supposed to encourage greater production of goods. With the global economy integrating more and more, labour costs are on the increase, and this makes MNCs less likely to produce more goods. In addition, Roy (1991) notes that export growth strategies are unlikely to enhance economic growth if factors such as real exchange rates are not addressed by governments.

Palley (2012) is of the similar view, and argues that the export-led growth strategies are becoming less effective for developing countries, and as such should be discontinued, given the potential harm that can be caused in this ever-changing global environment. He champions the implementation of policies that support domestic demand-led growth without necessarily abandoning exports. The effects of the global crisis in 2008 further highlighted the need for countries to move away from export oriented growth, as more and more countries faced challenges as global demand diminished for goods and services. In addition, the prices of manufactured goods are significantly lower, thereby leaving countries at a disadvantage.

Palley (2012), however, notes that the growth of China should see developing countries continue benefitting through increased commodity prices for minerals like iron ore, copper, and lumber in construction. Balchin et al (2016, p. 1) are of the view that "innovation and productivity growth in manufacturing is faster than in other sectors, and faster technology adoption and innovation raises aggregate labour productivity and reduces prices, which brings up real incomes and profits leading to faster investment". Developing countries that have significant limited domestic demand, like Zambia, should work towards effectively implementing export growth strategies.

3.2.2 Determinants of Exports

Carneiro (2010) believes that several factors, both domestic and international, affect export performance in a country. These include the type of export strategy being used, planning, organization and management qualities and the external environment.

To further elaborate this, Grenier et al (N.D) notes that larger firms are more able to sustain their investment, and as a result export more products than smaller firms in Tanzania. He further

notes that trade liberalisation plays a key role in encouraging manufacturing exports, through removing protection and increasing the relative returns on exports. This is mainly to enhance the competitiveness of products on the internal market. Whilst Tanzania lost revenues because of liberalisation of its economy, this was eventually offset by the increase in export returns. In this regard, several African countries are now agreeing preferential access to certain markets including USA (through AGOA), EU markets and regional markets i.e. COMESA, EAC and SADC.

Closely linked to trade liberalisation is the need for prudent management of exchange rates, as they can influence the competitiveness of manufactured products. Balchin et al (2016) noted that several SSA countries aligned their exchange rates to the dollar in order to help attain stability. It was also noted that this pegging of exchange rates leads to an appreciation of the currency, which eventually leads to slowing of exports from Africa and a collapse of the manufacturing sector.

In addition, Grenier (N.D) was of the similar view that the external environment played a key role in influencing the export performance of a country like Tanzania. For instance, the heavy reliance on the export of agricultural raw materials placed Tanzania at a significance disadvantage, especially because the global prices of primary products were cyclical in nature. Coupled with the over-valuation of the shilling in previous years, this had adverse effects on export performance. This view is further emphasized by Caneiro (2010), who points out that external environment affects exports performance, by citing the recent global economic crisis and the economic downturn that followed as one such key example. It is further noted that the economic crisis led to the reduced demand of manufacturing exports. However, it should be noted that the growth of markets and the expanding middle income class in Africa has led to an increase in demand of manufactured products, and created opportunities for greater intra-African trade.

Foreign Direct Investment can play a key role in export growth. This is mainly because FDI induces higher supply capacities of industries and higher spill-over effects, which leads to higher export performance. It is, however, important that FDI is invested in key sectors of the economy that could bring about economic and social transformation. For instance, whilst Zambia remains one of the leading countries that attract FDI in Africa, over 70% of this investment is made in the extractive sector (Balchin et al, 2016). Whilst this is positive, greater

efforts need to be made to attract more investment in the manufacturing sector, given the strong backward and forward linkages and opportunities for economic growth and development. This should be undertaken in the overall framework of export-led growth strategies, taking full advantage of access to both regional and international markets available under COMESA, SADC, European Union and the United States of America.

Given that the labour costs in China are significantly rising whilst productivity reduces, other countries are providing more competition because the unit labour costs are lower. Balchin et al (2016, p. 25) are of the view that "for many SSA countries, productivity growth has outpaced wage growth, leading to a decreasing trend in unit labour costs". This will therefore make exports in manufacturing sector more competitive on the world market, as labour unit costs relatively reduce.

It is also believed that the development of Special Economic Zones (SEZ) or industrial parks can enhance the export capabilities of SSA countries (GoZ, 2014). In this regard, Balchin et al (2016) note that Ethiopia established several industrial parks to support light manufacturing industries, and was still planning to develop new industrial parks to alleviate soft and hard infrastructure bottlenecks, to spur export growth. This is an effort to ensure that products exported were competitive on the international market.

3.3 Empirical Evidence

It is important to note that significant amounts of literature have conducted studies on general trade performance of countries. This paper takes a step further, and specifically focuses on empirical studies conducted to assess the export performance relationships and their potential linkages to economic growth.

3.3.1 Export and Economic Growth

Most empirical studies undertaken focusing on Africa tend to be cross-country. Fosu (1996) is of the view that those countries that engaged in exports had a better economic performance for 28 countries in Africa.

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Were et al (2002) notes that exports tend to stimulate economies of scale, demand and production linkages due to increased technological transfer, increased efficiency, larger markets, increased product sophistication through specialization and improved human resources.

Keho (2015) used a multivariate cointegration approach, and noted that there was unidirectional causality between exports and GDP growth in Ghana. It was further noted that there was bidirectional causality between FDI and exports in Benin; and GDP causes exports in Benin, Democratic Republic of Congo and Gabon, cementing the expectation that exports can play a key role in economic growth of a country. Musila and Yiheyis (2015), on the other hand, argue that increased trade openness had a positive effect on investment, but was statistically insignificant for economic growth for Kenya.

Zahonogo (2017) used cross sectional data in his study of 42 SSA countries using the Polled Mean Group (PMG) estimation technique, and concluded that there were significant threshold effects in the relationship between trade and economic growth. It is therefore important that African countries increased their productivity and innovation, and developed their financial markets to maximize this linkage.

Ozturk and Acaravci (2010, p. 248) employed "cointegration and multivariate Granger Causality developed by Toda and Yamamoto (1995) to study the long-run and short-run dynamics among exports' growth and real output growth over the period of 1989-2006 for Turkey". The study noted that export growth strategies were appropriate for Turkey's development. In addition, Dritsakis (N.D) used a multivariate causality based on the error correction model to ascertain the relation between exports and economic growth for EU, USA and Japan. The study revealed that there was a strong bilateral causal relationship between exports and economic growth for USA and EU, while no relationships were found for Japan.

Constatine et al (1996), Zou et al (1998), Carole (2009) and Vihn (2005), all confirm that firm development plays a key role in enhancing the export performance of countries. This is mainly because firms export more as they adopt greater technologies, innovations and better management. However, it is important that firm development is within the appropriate sector that provides the most potential for economic growth and impact. We can therefore note that in

most cases, effects of exports on growth are the same between developing and developed countries. Table 1 below summarizes the literature sources and key findings.

Table 1: Summary of Literature Sources and Key Findings

Study	Country	Methodology	Findings
Dritsakis (N.D)	EU, USA and Japan	Multivariate Causality and error correction methodology	Strong bilateral causality relationship between exports and economic growth for USA and EU.
Ozturk and Acaravci (2010)	Turkey	Cointegration and Multivariate Granger Causality	Export led growth was valid for Turkey.
Baku (1989)	37 African Countries	Comparative studies	Export growth had a positive impact on economic development
Fosu (1996)	28 LDC's in Africa	Cross section study 1960-1970, 1970-1980	Exports enhanced economic growth.
Musila and Yiheyis (2015)	Kenya	OLS and Granger Causality approach	Trade openness had a negative but significant effect on economic growth and investment.
Keho (2015)	12 SSA Countries	Johansen Cointegration Approach	There was unidirectional causality between GDP growth and exports for Ghana. In addition, there were bidirectional causal relationships between FDI and exports in Benin; and GDP and exports in Benin, Congo Democratic and Gabon.
Zohongo (2017)	42 SSA Countries	Poled mean group estimation technique	There was a relationship between trade and economic growth.

In summary, whilst many development proponents are advocating for enhanced implementation of domestic demand models for growth, exports-led growth models still prove to be effective in enhancing economic growth. A country like Zambia, with slightly over 14 million people and coupled with weak infrastructure networks, would present a challenge for the demand growth model. In this regard, export growth approach looks more likely to succeed. This is mainly because the various sources of literature confirm that this approach can have a similar positive impact for both developed and developing economies if key fundamentals such as investment, productivity, regulation, external environment, infrastructure, among others, are in place.

Although some studies like Musila and Yiheyis (2015) have found a negative relationship between trade openness and economic growth, it has generally been observed that aggregate trade openness was found to have positively affected economic growth across both developed and developing countries.

Whilst the export led growth model remains valid for most developing and developed countries, Zambia needs to ensure that key determinants of export performance are adequately understood and considered when formulating policies and strategies that speak to enhancing economic growth.

3.3.2 Determinants of Export Performance

Studies conducted by Edwards and Alves (2005) and Roy (1991) conclude that macroeconomic factors such as exchange rates are vital for encouraging the manufacturing sector growth among other factors such as infrastructure costs, tariff rates and skilled labour. In this regard, Drulhat et al (2015) notes that for the copper sector, factors such as versatile exchange rate movements, foreign exchange restrictions and low supply of inputs affect the exports in the sector. This is mainly because movements in exchange rates affect the costs of imports and exports, making them either cheap or expensive.

Manamba (2016) used the Johansen cointegration and Granger Causality approach to test the factors affecting export performance in Tanzania for the period 1966-2015. The study revealed that "economic real per capita GDP, trade liberalization, and exchange rate have a positive impact on export performance in Tanzania" (p.1). It was further noted that inflation has a negative impact on exports. It is therefore important that government implements policies that aim at improving the real per capita GDP, trade liberalization and economic stability to improve export performance.

Funke and Holly (1992) incorporated both demand and supply factors in their study of determinants of exports in West Germany's manufacturing sector, focusing on the engineering and motor vehicle sector. The study concluded that factors such as world demand, domestic prices, domestic capital, and foreign prices affected the export of motor vehicles.

Majeed and Ahmad (2006), using a comparative study of developing countries, revealed that GDP, FDI and national savings positively impacted export growth. However, it was noted that

FDI exhibited the least level of significance as compared to the other variables. With an increase in savings, it is expected that interest rates will reduce, therefore leading to greater access of finances by SMEs. It is therefore important that optimal monetary policies both attracts savings and encourages domestic investment.

Roy (1991) used the Full Information Maximum Likelihood (FIML) to assess the determinants of exports in India's manufacturing sector between 1960-2004. He notes that export prices and world demand play a key role in export performance. In addition, variables such as government policies, exchange rate and learning capacities, among a few, influenced growth of exports.

In his study, Mahadevan (2009) notes that the growth of exports is closely linked to competitiveness and the ability to enhance FDI mobilisation strategies. This reiterates the importance played by FDI in strengthening the export performance of countries. Using the comparative analysis, Skosan and Kabuyab (N.D) further reinforce this argument, and note that Foreign Direct Investment (FDI), nominal exchange rates and world demand affected Swaziland's export performance. It was further argued that other factors, such as domestic consumption, real GDP and internal factors, did not contribute to export performance of the country. This could be explained by the high level of trade liberalisation between Swaziland and its neighbouring countries under various trade frameworks, including its membership to Southern African Customs Union (SACU).

Hervél et al (2014, p. 98), however, argue that, for Zanzibar, "FDI and GDP exhibit a weak relationship with export demand". This could be attributed to the fact that increasing FDI inflow attracts a significant number of producers into the services sector. Therefore, care should be made to ensure that variables such as FDI and its effect on export performance are clearly understood. Failure to do so could result in more harm than good being created from pursuing aggressive FDI strategies.

Were et al (2002) argues that investment and real exchange rate as a proportion of GDP was significant. It was further noted that other non-macroeconomic variables, such as labour, cost of input and access to credit, could have an important role to play in enhancing exports.

Hatab et al (2010) notes that GDP positively affected exports of agricultural products for Egypt for the period 1994 to 2008. In addition, exchange rate volatility, GDP per capita and transportation costs recorded varying levels of influence on export performance.

Mwansakilwa et al (2013), using cointegration and error correction techniques, noted that domestic production, population of importing country, real GDP, currency depreciation and prices of exports affected the export of flowers in Zambia. We can therefore note that macroeconomic variables are important in fostering and enhancing a favorable environment for the export of flowers in Zambia. The same can be said of the need to enhance the environment of the overall manufacturing sector, to enhance export performance.

A market survey undertaken by the Government of Zambia (2014) revealed that several challenges affected the growth and development of the manufacturing sector. This included lack of developed financial markets, unfavourable tax regimes, costly and inaccessible utilities, poor infrastructure, and a change in preferences to higher quality goods. Inasmuch as all these factors hinder the growth of Zambia's manufacturing sector, it is important that macro-economic environment is conducive for growth of the sector.

Whilst some studies have focused on macro-economic variables, others have, however, focused on accessing firm level variables to enhance the understanding of factors that affect export performance in a country. For instance, Constantine et al (1996), Carole (2009) and Vihn (2005) have mostly used panel data analysis of firm level determinants of export performance for developed countries such as Greece and France through an analysis of several factors affecting export of goods. They concluded that technological advancement, research and development, firm size, marketing capabilities, business partnerships, export policy, customer relations and cultural adaptation influence export growth of these countries.

Niringiye and Tuyiragize (2010) undertook a firm level study on determinants of exports in Uganda and concluded that labour ratio, firm size and Asian ownership were determinants to exports. Given that labour costs, ownership and firm size have a key role to play in determining export performance as such, it can be concluded that the government has a significant role to play in facilitating for greater export performance by firms through appropriate regulation of the labour markets. It is expected that a well-functioning labour market will facilitate for greater export performance.

Ahmed and Said (2012) notes that firm size was significant, whilst corruption and logistics were both insignificant in their study of firm level determinants of export firms in Pakistan, Bangladesh and India. A main methodological concern for the study was on dealing with 'simultaneity' bias, which would render the estimates biased. This was addressed by lagging the independent variables.

Much of the firm level determinants have bordered around supply factors. Clark and Dihn (2012) note that any factor that can affect the import of raw materials used in the production of goods can ultimately affect export performance. Such factors could include inflation, as this could raise the prices of inputs used in the production process (Manamba, 2016). It is therefore important that this possible effect is also studied to ensure that appropriate recommendations can be made on monetary policy. Table 1.1 provides a summary of the literature sources, methodologies used and key findings.

Table 1.1: Summary of Literature Sources and Key Findings

Study	Country	Methodology	Findings
Roy (1991)	India	Full Information Maximum Likelihood	World demand and relative export price affect export performance. In addition, learning capacities, exchange rate volatility government policies influence export growth from the supply side.
Funke and Holly (1992)	West Germany	Full Information Maximum Likelihood	Exports were determined by foreign prices, world demand and domestic capital.
Constatine et al (1996)	Greek manufacturing firms	Ordinary Least Squares	Results revealed that export strategies were significant in determining export performance.
Carole (2009)	France	Survey of 214 companies	Variables such as firm size, technological innovations, business partnerships among others affected the positive performance of firms.
Mahadevan (2009)	Singapore	Multivariate Error Correction model and Vector Auto Regressive model	Export performance is closely associated with competitiveness and ability to pursue aggressive FDI strategies.

Vihn (2005)	General study	Resource based review and contingency approach	Intensive customer relationship contact, process quality, cultural adaptation plays a significant role in enhancing exports in service sector.
Majeed and Ahmad (2006)	75 Developing countries	Panel Data analysis using uniform shifts	FDI, GDP, communication facilities and stable exchange rate affect export performance of developing countries.
Skosan and Kabuyab (N.D)	Swaziland	Cointegration and error correction approach	Variables such as nominal exchange rates, world demand and FDI influenced export performance for Swaziland.
Were et al (2002)	Kenya	Cointegration and error correction approach	Real exchange rate and investment was statistically significant in determining Kenya's export performance.
Edwards and Alves (2005)	South Africa	Simultaneous equation approach and Auto Regressive Distributive Lag	Export performance in South Africa was determined by infrastructure costs, tariff rates, exchange rate, and skilled labour from the supply side.
Hatab et al (2010)	Egypt	Gravity model	Domestic growth, export volatility and transportation costs affected exports.
Niringiye and Tuyiragize (2010)	Uganda	Tobit and Probit estimation procedures	Labour ratio, firm size, agro-based firm and Asian ownership determined exports in Uganda.
Ahmed and Said (2012)	Pakistan, India, Bangladesh and Sri Lanka	Ordinary Least Squares	Informal activity, corruption and logistics were insignificant at explaining export growth.
Clark and Dihn (2012)	African Countries	Survey	Productivity, inflation, access to finance and electricity affects export performance of SSA countries.
Mwansakilwa et al (2013)	Zambia	Cointegration and error correction approach	Real GDP, exchange rate, population of importing country and export prices influence exports in the flower sector.

Hervél et al (2014)	Zanzibar	Ordinary Least Squares	FDI and GDP have a weak relationship with export performance. On the other hand, export price is statistically significant.
Manamba (2016)	Tanzania	Johansen Cointegration and Granger Causality	Inflation negatively affects exports performance. Whilst trade liberalisation, exchange rates and GDP positively affects export performance in Tanzania.

The study has identified several literature sources providing empirical evidence on factors that determine export performance in both developed and developing countries, including linkages to economic growth. It is also noted that both firm level and macroeconomic factors are important in enhancing exports in these sets of countries, regardless of type of productive sector, be it agriculture or manufacturing. The findings also reinforce the notion that the government can play an important play in the development of the productive sectors for enhancing export growth. However, before appropriate firm level specific policies can be put in place, the government should ensure that the macroeconomic environment is conducive to favourable growth of the manufacturing sector. The study is therefore underpinned by export growth strategies that focus on non-firm factors such as exchange rates, inflation, FDI, GDP, interest rates and lending rates are within acceptable limits to encourage the growth of exports in the manufacturing sector.

Given that no studies have been undertaken to assess factors affecting Zambia's export performance in the manufacturing sector, this study will complement the several studies undertaken on the subject matter. Whilst development proponents are now calling for the use of domestic demand approach for countries lagging in their development objectives due to some of the perceived weakness of export led growth, the export oriented strategy remains important, especially for those countries that do not have sufficient domestic demand to support the growth and industrialisation of their economies. The study is therefore of the view that if Zambia is to achieve greater levels of industrialisation and development, its focus should be on enhancing export growth and leverage its economic opportunities for wider markets because of its participations in REC's like COMESA and SADC. The study will therefore be underpinned by export growth theory as demand driven growth is less applicable to the country given the low population level.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1.Introduction

This section discusses the research methodology by elaborating on the approach and strategy utilised in analysing the data. In addition, it provides the sampling techniques, as well as the type of data used and methods of analysis. It further highlights a summary of the justification in the choice of variables used, including sources of data used. It also highlights the various limitations faced and some of the remedial measures taken.

4.2. Data Collection, Frequency and Choice

The study made use of time series data for the period 1970 to 2015. This period was chosen because it overlapped with some of the key policy reforms adopted by the government. This included the shift from socialism to capitalism and eventually trade liberalisation through accession to RECs such as COMESA and SADC, among others.

The study used secondary data sources, including the Common Market for Eastern and Southern Africa (COMESA) statistical database (COMStat), World Development Indicators (WDI) 2016 dataset, UNECA statistical year books, Bank of Zambia (BoZ) and the Central Statistical Office (CSO) 2013-2016 datasets.

The sample included yearly data variables from 1970-2015. A study undertaken by Chandra (2003) calls for the use of quarterly rather than annual data, to reduce the misinterpretation of analysis due to small sample sizes. Due to challenge of obtaining quarterly data with regards to some of the variables, the yearly data was maintained.

4.3. Model Specification

The study made use of Ordinary Least Squares (OLS) technique and Auto-Regressive Distributed Lag (ARDL) methods. According to Stan (1998), Marlin (1992) and Majeed et al (2006), the OLS approach provides some of the most reliable results for such type of studies.

The OLS model is provided as follows;

$$Y_{i,t} = \alpha + \beta 1 X_{i,t} + \varepsilon_{i,t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Equation (1) can further be expanded to include more than one variable as follows;

$$Y_{i,t} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_k X_k + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

The vector X includes the export determinants (i.e., FDI, GDP, interest rate, lending rates, exchange rate and inflation), β represents coefficients, *i,t* represent the industry and time.

Although the OLS method has been widely used, it can be limited with regards to providing dynamic relationship between variables in the long run and short run. As such, the study also made use of the Vector Auto Regressive (VAR) model specifically the ARDL.

The general formulation of the ARDL model is written as follows;

$$Zt = (Exp\_Munt, FDIt, GDPt, Inf\_Rt) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

According to Mounir (2010), each variable under the VAR method represents a combination of linear functions of lags. The advantage of using the VAR is that variables do not need to be stationary to test the relationships. In addition, the study used the Auto Regressive Distributed Lag technique as a form of VAR given the finite sample size.

Because of the possibility of cointegration within the ARDL model, the study proceeded to test causality relationships within the variables using the Granger Causality test as guided by Marlin (1992).

4.3.1 Choice of Variables and Expected Relationships

Export Performance (EXP_MUN)

Several indicators have been used in numerous studies to accurately measure the performance of exports in manufacturing sector, for instance a manufacturing survey undertaken by the Government of Zambia (2007) used indicators such as percentage of manufacturing share in GDP, number of workers working in Manufacturing companies and labour productivity as metrics to measure performance. For this study, export performance of Zambia's manufacturing sector will be measured through the total value (in US$, 2010 constant prices) of manufacturing exports. According to the Standard International Trade Classification (SITC)[11], manufacturing sector is categorised by the following sub-sectors: non-metallic and mineral products, leather and leather products, food beverage and tobacco, paper and paper products; textile and clothing; basic metal products, chemical, rubber and plastic products, fabricated metal products, other manufacturing and wood and wood products.

It is therefore premised that as exports increase in the manufacturing sector, the greater will be the value addition and diversification of the economy. Ahmed and Said (2012) notes that more manufacturing goods are produced, the greater the technological transfer leading to product sophistication and industrialisation will be. Hence the need to study this key sector and analyse its determinants. A summary of the variable description and expected relationship is provided in section 4.3.2.

Foreign Direct Investment (FDI)

Foreign Direct Investment (FDI) could play a key role in enhancing the exports of goods in the manufacturing sector. Although a hotly contested issue, FDI when invested in the right sectors could improve the export of manufactured goods. For instance, the government is making use of Multi Facility Economic Zones (MFEZs) to enhance production output and exports to regional and international markets. Rasmussen et al (2014) recognize the important role MFEZs can play in strengthening the industrial capacity of a country, and further call on most developing countries to adopt this approach.

[11] SITC Chapter 6 Rev3

The creation of MFEZs is meant to support the diversification of a country's exports by providing the tax rebates to companies that operate in these areas for primarily producing goods that will be exported. Although the nature of the investment can sometimes be a hotly contested issue, there is no doubt that the establishment of MFEZs is helping attract FDI and could positively lead to greater export of manufactured products. Mahadevan (2009) notes that enhanced exports will facilitate the increased competitiveness and ability of the economy to enhance the mobilisation of FDI. The FDI data was drawn from the WDI dataset.

Gross Domestic Product (GDP)

Gross Domestic Product can be defined as the value of total economic output of a country. It is expected that increasing the national output will have a positive effect on export. This is based on the fact that as the economy expands and grows, so will production levels, therefore supplying more than what is required in the domestic market. This will lead to greater exports to regional and international markets. A study undertaken by Keho (2015) concluded that DGP caused exports in Benin, D.R Congo and Gabon. The real values of GDP were measured in US$, and 2010 constant prices were sourced from WDI dataset.

Lending Rate (LEND_R)

Lending rates refer to the commercial bank rates on loans to individuals and businesses. The lower the rates, the greater the domestic investment. As SMEs easily access finance, their businesses begin to grow and expand, which therefore increases productivity, innovation and streamlined business practices (Mwansakilwa et al, 2013). The expansion in output is expected to lead to greater production and subsequently increased exports. The annualized interest rates were derived from the WDI dataset.

Inflation (INF_R)

Most of the factors that affect the cost of inputs affect the competitiveness of products at the regional and international markets. Therefore, most MNCs are now setting up production factories in China because it has lower labour unit costs as compared to other countries. One of the key factors that have affected the costs of production process in most developing countries is inflation. Inflation plays a key role in the access of various inputs and products for the production process. It is therefore important that governments manage the monetary and fiscal policies to ensure that inflation is kept within acceptable limits. Manamba (2016, p. 475) notes that "increases in inflation in the exporting economy than importing economy may cause

exports to become more expensive, resulting in a decline in exports". This is mainly because inflation in an economy leads to higher prices of goods being exported which leads to lower exports. The annualized inflation rate data was derived from the Central Statistics Office 2013-2016 database.

Exchange Rate (EXCH_R)

Exchange rates play a key role in determining the ability of a country to trade with its partners. For instance, the weaker a currency is, the greater the amount of goods and services it can export to its trading partners. Several studies, including Hatab et al (2010), Edwards et al (2005) and Roy (1991), have conducted studies on the effect of exchange rate volatility on export performance. They conclude that exchange rates are vital for encouraging growth of exports. The exchange rates were calculated on a basis of average annual exchange rate of monthly rates in kwacha dollar terms. The data was sourced from multiple datasets, including BoZ, CSO and UNECA statistical year books. From 2013 onwards, the Zambian currency was rebased and the study took this into account.

4.3.2 Research Assumptions

Macroeconomic stability is thought to be the cornerstone of development progress in a country. The more stable a country is, the greater the focus of government policies on growth of productive capacities is. This study does not dwell on the potential impact of Zambia's membership to regional bodies such as COMESA and SADC, although pertinent, but rather focuses on the overall economic factors that establish the environment for growth.

It is expected that FDI will increase production output of industries in the sector. This will be achieved through increased technological transfer and streamlining of business process. This increased output should see increased exports of products to both regional and international markets.

Gross Domestic Product represents the total value of goods and services produced in a country. GDP is expected to positively relate to export performance in the manufacturing sector. This is mainly because as the economy grows, the linkages between the manufacturing sector and other sectors strengthen. This could lead to cheaper inputs of manufacturing products.

Lending rates represent the cost of borrowing resources from commercial banks. The availability of finances to SMEs and large businesses will affect the amount of resources companies can access to expand their production. Lending rates are expected to negatively affect export performance in the manufacturing sector.

Inflation is the rate at which prices of goods and services rise. The higher the inflation rate, the costlier it is to source inputs for the production process. This will make the prices of goods expensive, and therefore affect competitiveness. Inflation is therefore expected to negatively affect exports.

The exchange rate represents the price of the dollar to the Kwacha (ZMW/$). The more the currency depreciates, the cheaper the Zambian goods will be to importers. It is therefore expected that the exchange rate will be negatively related to exports in manufacturing sector.

Table 2: Summary of Variable Description and Expected Relationships

Variable	Measurement	Source of Data	Expected Sign
Foreign Direct Investment (FDI)	Value of FDI inflows (current US$)	WDI 2016	Positive
Gross Domestic Product (GDP)	Value of national Output (2010 constant prices) US$	WDI 2016	Positive
Lending Rates (LEND_R)	Annualised Commercial bank lending rates to individuals and business	WDI 2016	Negative
Inflation (INF_R)	Annualised rates of consumer price index	Central Statistics Database	Negative
Exchange Rate (EXCH_R)	Average annual exchange rate of monthly rates in kwacha dollar terms	Bank of Zambia, Central Statistics Office and UNECA Statistical year books	Negative

4.4 Analytical Approach

The study employed a multivariate model for the purposes of reducing any potential misspecification. Noting the time series nature of the data, OLS and ARDL methods were used to assess the dynamic relationships amongst variables.

Ahmed and Said (2012, p. 240) notes that "one of the key challenges posed by the OLS method is that time series variables are sometimes non-stationary, leading to misleading economic analyses or spurious results". The model may reflect insignificant results, which may in many cases be a result of correlation. The study therefore tested for unit roots utilizing the Dickey-Fuller Test.

In addition, such studies are usually affected by reverse causality which would provide biased estimates. To overcome this, the study lagged the variables. This is in line with similar studies undertaken by Ahmed and Said (2012) which used similar approaches to address this challenge.

The ARDL technique was used to ascertain the various cointegration relationships between the variables under the framework of the VAR. The ARDL was chosen because it is more appropriate to analyze smaller samples. In addition, Mounir (2010) argues that the ARDL is more preferred because it can be applied when variables are integrated of multiple orders, unlike other models such as the Vector Error Correction Model (VECM), that require all the variables to be integrated of the same order, i.e. order 1.

In ensuring that the study was reliable, diagnostic tests were run to ensure that conditions for linearity, equal variance, randomness, uncorrelation and normal distribution were met.

The study utilises both T-tests and F-tests to assess the reliability of the models. The P-value is the probability of finding extreme values when the null hypothesis of the study is true. Therefore, a P-value that is greater than 0.05 will lead to not rejecting the hypothesis and if less than 0.05 the study proceeded to reject the hypothesis.

4.5 Research Reliability and Validity

To enhance research reliability and validity, several diagnostic tests were conducted and these included tests for normality, heteroskedasticity, autocorrelation, multicollinearity and unit roots. Whilst most of the tests conducted did not reveal any significant challenges, they did, however, facilitate the modification of the model, therefore facilitating for conclusions to be made using the F and T tests. The study utilised variables such as the coefficient of determination or R-squared (R^2) and adjusted R-squared (Adj R^2) to ascertain the goodness of fit of the models. The results of models highlighting very high or very low R-squared should be interpreted with caution as numerous factors could be affecting the results. These could

include number of variables in the model, trends in data, over fitted model etc (Ogee et al, 2016) [12].

4.6 Limitations

As highlighted in section 4.2, some studies have championed for the use of quarterly data rather than yearly data for several reasons, including the ability to better track the effects over time. Quarterly variables were not available for some variables such as FDI and manufacturing exports to enable observations. As such, yearly data was used.

Given that policies and macroeconomic environment keep changing, it is important that more frequent data is used in such studies in the future. Though the study intended to use data as far back as 1964, being the year that Zambia gained its independence, yearly data for some variables such as FDI were only available from 1970. Some models revealed insignificant results, and this could be because of a small sample size (46 observations). It is therefore important that caution is taken when interpreting the results and making any inferences.

Whilst the study tried to use one source of data for analysis per variable, in some cases, more than one source was required to be used and this could provide challenges in the mismatch in the way the data was collected and compiled from the various sources. To address this, the data was smoothed through natural logs and differenced. This also made the data more linear and facilitated for estimation.

[12] http://blog.minitab.com/blog/adventures-in-statistics-2/five-reasons-why-your-r-squared-can-be-too-high

CHAPTER FIVE
RESEARCH FINDINGS AND DISCUSSION

5.1 Introduction

This chapter discusses and analyses the results obtained using the methodology discussed in the previous chapter. In addition, diagnostics tests undertaken are presented to test the models and strengthen the dependability of the results. The study then proceeds to offer an interpretation of the results of the OLS and VAR techniques utilised.

5.2 Diagnostic Tests

The following diagnostic tests were undertaken:

5.2.1 Linearity

Most economic data tend to be non-linear in nature because of the exponential growth pattern of the data. Using such data without transforming it first would lead to biased results in the model, due to not meeting the assumption of linearity for this model. The study therefore proceeded to log transforming the data to linearise it. The log transformation allows the data to have a more stable variance and mean over time. The data was then differenced to the first order to enhance its properties for linearity. A plot of the variables once transformed is presented in Appendix 1.

5.2.2 Test for Normality

The study also conducted a test of normality of the variables using the Skewness-Kurtosis test using Stata. The Skewness-Kurtosis test is a variation of the Jarque-Berra test and presents a better test given the limited sample size used. The test was run on both OLS models.

Table 3: Skewness-Kurtosis test

Model 1					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi-square	Prob>chi-square
My Residuals	46	0.8981	0.2472	1.42	0.4907
Model 2					
My Residuals2	46	0.9114	0.9218	0.02	0.9890

Source: Authors own calculations

Given that the P value of both models were above 0.05 i.e. 0.4907 and 0.989, we reject the null hypothesis and conclude that there isn't enough evidence to suggest that the data is not normally distributed, therefore meeting the assumption of normality.

5.2.3 Test for Stationarity (Unit Root Test)

The study tested for the presence of unit root using the Dickey-Fuller test. It should be noted that many price series increase exponentially, and as a result the variables tend to be non-stationary and as a result require to be smoothed. The study acquired the differenced logged variables to achieve linearity and then tested for stationarity, using the Dickey-Fuller test. As presented in table 4 below, exports in manufacturing sector, FDI, GDP, lending rates and inflation rate were stationary at zero order. Exchange rate was discovered to be non-stationary at various orders of integration. This could be because of several reasons, including low sample size, or the variable could be affected by cointegration. Because of its non-stationarity properties, the variable was excluded from the two (2) OLS models to strengthen the reliability of results and avoid any biases.

Table 4: Augmented Dickey – Fuller Unit Root Tests

Variable	**Augmented Dickey-Fuller Statistic**	**Order of Integration**
Exp_Mun	-7.061	I(0)
FDI	-9.976	I(0)
GDP	-7.081	I(0)
Lend_R	-5.731	I(0)
Inf_R	-7.091	I(0)
Exch_R	-2.803	-

Source: Authors own calculations

The critical values used to reject the null hypothesis were -3.614, -2.944 and -2.606 at 1%, 5% and 10% significant level. The null hypothesis was rejected for all the variables except for exchange rate, as it was below the absolute significance value at 5%.

5.2.4 Test for Multicollinearity

Multicollinearity occurs when one variable can be predicted by other variables in the model. Although some form of correlation is expected, multicollinearity becomes a problem when the correlation is medium to strong. This could be problematic as it would bias the standard error and thus inflate the confidence intervals and biases the t-statistics, and makes it difficult to evaluate the model.

In assessing multi-collinearity, the model computed the Variation Inflation Factor (VIF) and correlation matrix of coefficients. The VIF provides the extent to which standards errors coefficient variances have been inflated upwards. The rule of thumb is that the VIF should not be inflated by more than twice. Table 5 below presents the VIF for the two specified models and the results show that all the variables have a VIF of less than two hence not correlated.

Table 5: Variation Inflation Factors

Model 1			**Model 2**	
Variable	**VIF**	**1/VIF**	**VIF**	**1/VIF**
Dloglend_r	1.41	0.711172	-	
Dlogdg	1.37	0.728751	1.26	0.791917
Dloginf_R	1.33	0.753310	1.06	0.941130
Dlogfdi	1.28	0.779392	1.28	0.781359
Mean VIF	1.35		1.20	

Source: Authors own calculations

In addition, the study estimated the correlation matrix of coefficients to determine the correlations between variables.

Table 6.0: Correlation Matrix of Coefficients (Model 1)

	Dlogfdi	**Dloggdp**	**Dloglend_r**	**DlogInf_r**	**Constant**
Dlogfdi	1	-	-	-	-
Dloggdp	-0.4421	1	-	-	-
Dloglend_r	-0.0502	0.2824	1	-	-
Dloginf_r	-0.1746	0.0361	-0.4467	1	-
Constant	-0.1640	0.6251	0.2186	0.0296	1

Source: Authors own calculations

Table 6.1: Correlation Matrix of Coefficients (Model 2)

	Dlogfdi	Dloggdp	DlogInf_r	Constant
Dlogfdi	1	-	-	-
Dloggdp	-0.4466	1	-	-
Dloginf_r	-0.2205	0.1891	1	-
Constant	-0.1570	0.6018	0.1458	1

Source: Authors own calculations

Using the correlation matrix, we can observe that the coefficients between the variables are less than 0.5 and thus do not present a challenge of multicollinearity. This implies that going forward with the analysis, no variables will be dropped. This assessment is in line with our observations using the VIF coefficients which did not reveal any correlation challenges among the variables for both models.

5.2.5 Test for Heteroscedasticity

A model is said to have heteroscedasticity when the variance of the errors is not constant. The study utilised the Breusch-Pagan/Cook-Weisberg test and the outcomes are presented in table 7 below.

Table 7: Breusch-Pagan / Cook-Weisberg test

Model 1	**Model 2**
Variables: fitted values of Dlogexp_mun	Variables: fitted values of Dlogexp_mun
Chi-square (1) = 1.79	Chi-square (1) = 1.84
Prob > chi-square = 0.1814	**Prob > chi-square** = 0.1748

Source: Authors own calculations

With a null hypothesis of constant variance or homoscedasticity, the p-value for both models i.e. 0.18 and 0.17 was greater than 0.05, and it was concluded that there was not enough evidence to reject the null hypothesis, and therefore concluded that both models did not exhibit homoscedasticity tendencies. In addition, residual plot graphs were created for both models, and these confirmed the conclusion of the results obtained above. Residual plot graphs are presented in attachment 2.

5.2.6 Test for Autocorrelation/Serial Correlation

Autocorrelation occurs when errors are interdependent. The presence of autocorrelation in variables nullifies the assumption of randomness in variables therefore can produce bias results.

To test the presence of autocorrelation, the study used the Breusch-Godfrey test. The advantage of using the Breusch-Godfrey test is that it tests for serial correlation through several lags other than one. A presence of positive serial correlations in errors moves the standard errors of the regression coefficient downwards, therefore inflating the t-statistics for the coefficients upwards hence affecting the interpretation of results.

Table 8: Breusch-Godfrey LM test for autocorrelation

Model 1			
lags(p)	chi-square	Degrees of freedom	Prob > chi-square
1	2.708	1	0.0998
Model 2			
lags(p)	Chi-square	df	Prob> chi-square
1	2.545	1	0.1106

Source: Authors own calculations

Given that both P values of the models are greater than 0.05, we fail to reject the null hypothesis and therefore conclude that there is not sufficient evidence to suggest that serial correlation is present in the model.

5.3 OLS Model and Interpretation

Having run the diagnostic tests on the model following the assumptions made, we can confidently conclude that the model satisfies the assumptions of normality, randomness, equal variance, non-correlation and linearity. The summary of the results is presented in table 9.0 and 9.1 below.

Table 9.0: OLS Model 1

Dlogexp_mun	Coef.	Std. Err.	T	P>|t|	[95% Conf.	Interval]
Dlogfdi	0.088	0.067	1.31	0.196	-0.047	0.224
Dlogdg	0.586	1.133	0.52	0.607	-1.701	2.875
Dloglend_r	-0.074	0.192	-0.39	0.702	-0.462	0.313
Dloginf_R	-0.205	0.108	-1.89	0.066	-0.425	0.014
_cons	-0.006	0.022	-0.31	0.762	-0.052	0.038
Source	SS	df MS		Number of obs	= 46	
	F(4, 41)	= 2.17				
Model	0.118	4 0.029		**Prob > F**	**= 0.0898**	
Residual	0.560	41 0.013		**R-squared**	**= 0.1745**	
	Adj R-squared	**= 0.0939**				
Total	0.678	45 0.015		Root MSE	= 0.116	

Source: Authors own calculations

Undertaking analysis using model 1 presents several challenges: firstly the F-value of the overall model is greater than 0.05, therefore failing to reject the null hypothesis that the variables are not equal to zero. Secondly, all the independent variables were statistically insignificant as all the p-values were greater than 0.05. As a result, it is not possible to assess the relationship between the independent and depend variables. Lastly, the coefficient of determination or R-squared was 17.45%, which makes for a poor fit of the model. Although the low R-squared might not be such a big concern, it simply implies that about 82% of variations in the model are not explained by factors in the model. If this was a prediction model, it could compromise the output of the model as it would be invalid.

The study attempted to address the flows of model 1 above by removing the variable with the highest p-value, or most statistically insignificant i.e. lending rate and the results are summarized in table 9.1 below.

Table 9.1: OLS Model 2

Dlogexp_mun |	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Dlogfdi |	0.087	0.066	1.31	0.198	-0.047	0.221
Dlogdg |	0 .710	1.075	0.66	0.513	-1.460	2.881
Dloginf_R |	-0.224	0.096	-2.33	0.025	-0.418	-0.029
_cons |	-0.004	0.021	-0.23	0.820	-0.048	0.038
				Number of obs	= 46	
Source |	SS	df	MS	**F(3, 42)**	= 2.90	
Model |	0.116	3	0 .038	**Prob > F**	= 0.0462	
Residual |	0.562	42	0.013	**R-squared**	= 0.1715	
Total |	0 .678	45	0 .015	**Adj R-squared**	= 0.1123	
				Root MSE	= .11573	

Source: Authors own calculations

It can be observed that the modifications made to the model improve the results obtained. Firstly, the F-value is statistically significant for the overall model, therefore strengthening its validity as it is less than 0.05. In addition, we can further observe that the inflation rate becomes statistically significant as the p-value is less than 0.05. This finding is similar to the findings observed by Manamba (2016) who affirms that inflation has a negative relationship to export performance. A percentage change in inflation leads to 22% reduction of exports in the manufacturing sector ceteris paribus. This is in line with the assumption made in the study that inflation is negatively related to export performance.

The model exhibited weak fit, with 17% of exports in the manufacturing sector being explained by the inflation rate. Over 83% of the variation in the model remained unexplained. The R Adj was also weak, at 11%. These findings are also in line with findings of Skosan and Kabuyab (N.D), Hervél et al (2014) and Hatab et al (2010) found that GDP, FDI and exchange rates were statistically insignificant in determining export performance.

Given that both models had several insignificant variables, it could also be possible that there was no relationship between the insignificant variables and the dependent variable given the sample size. In addition, it could also be possible that the variables do not exhibit that strong of a relationship in the short run hence the low predictive power. In this regard, it is important to assess how these variables relate in the long run using the Auto Regressive Distributed Lag (ARDL) model.

5.4 Auto Regressive Distributed Lag Model

Various models could be used to test the dynamic relationship of variables in regression models. Some of these could include VECM and ARDL among others. The study utilised the ARDL model mainly because the ARDL is better suited to the use of small sample data. In addition, the ARDL does not require variables to be integrated of the same order (Mounir; 2010). As observed by the Dickey-Fuller test in section 5.2.3, the variables were stationary at order I (0) with the exclusion of exchange rates that was non-stationary.

To successfully establish the model, the study proceeded to determine the optimal lag order for each variable. This is important as misspecification of lag length could skew the results of the model. Including few lags could leave out critical information, and including too many lags could lead to errors in the focus. To get the optimal lag length, Mounir (2010) promotes the use of Akaike's Information Criterion (AIC), Final Prediction Error (FPE) Criterion, Schwarz's Bayesian Information Criterion (SBIC) and Hannan and Quinn Information Criterion (HQIC). It was observed that exports for manufacturing sector and inflation rate had an optimal maximum lag length of zero (0). On the other hand, FDI and GDP reported a maximum lag length of 3 and 4 respectively. The optimal lag length determination for each variable is presented in Appendix 3.

From table 10 below, it can be noted that the ARDL model had a good fit, with 73% of variation in exports in the manufacturing sector being explained by FDI and Inflation rate. The outstanding 27% of variation were unexplained by the model. This represents a significant improvement in comparison with the OLS model that recorded an R-squared of 17%. In addition, the adjusted R-squared was also considerably higher, with 62% variations in the model being explained by the independent factors. It should be noted that diagnostic tests were conducted and the assumptions were fully met. The results are similar to those of Were (2002) and Manamba (2016) which found FDI and inflation rate to be statistically significant in determining export performance respectively. It can therefore be concluded that the export led growth model for Zambia was valid in the long run.

It should further be noted that the model is statistically significant and the coefficient of cointegration (-1.197) is negative, therefore confirming the presence of long run relationship

within the variables. We can therefore conclude that FDI and Inflation rate had long run associations with exports in manufacturing sector. It was also observed that FDI was positively related to exports in the manufacturing sector. In this regard, a change in the FDI would increase exports in the manufacturing sector by 48%.

In addition, the results further highlight that the inflation rate inversely affects exports in the manufacturing sector in the long run. This is in line with results obtained under the OLS model. A percentage change in inflation rate will reduce exports in manufacturing sector by 32%. As the inflation rate increases, factors of products such as technology, labour, raw materials etc increase, and as such raise the costs of production, making products uncompetitive. GDP was found to be statistically insignificant, but had a positive effect on exports in the manufacturing sector. No short run relationships were observed in the model.

Table 10: ARDL regression Model

Sample		1974-2015			
Observations		42			
Log likelihood		42.856			
R-squared		0.729			
Adj R-squared		0.617			
	Coefficient	**Standard Error**	**T**	**P-value**	**95% Confidence interval**
ADJ Dlogexp_mun					
Lag 1	-1.197	0.185	-6.45	0.000	-1.576 -0.817
Long Run Relation					
Dlogfdi	0.477	0.230	2.07	0.048	0.005 0.948
Dlogdg	1.873	1.306	1.43	0.162	-0.798 4.545
Dloginf_R	-.3222357	.1115801	-2.89	0.007	-0.550 -0.094

Source: Authors own calculations

See appendix 4 for the full Table.

5.5 ARDL Bounds Test

To confirm the results obtained in the ARDL model above, the study conducted the Pesaran/Shin/Smith ARDL Bounds test.

Table 10.1: ARDL Bound Test

Critical Values	0.1	0.5	0.25
F=10.8 t=-6.453	2.72	3.21	3.69

Source: Authors own calculations

The F-statistic (10.8) was greater than the critical value (3.23) at 5% significance level. The study therefore rejected the null hypothesis and reaffirms that the model exhibits some long run relationship among the variables. This implies that some variables move together in the long run. Given the presence of long-run relationships in the model, we can expect that the model includes at least one Granger-Causality relationship.

5.6 Granger Causality Model

The results of the Granger causality test (provided in Appendix 5) revealed the following; the lags of FDI, GDP and Inflation rate jointly caused exports in the manufacturing sector; joint lags of exports in the manufacturing sector, FDI and inflation rate caused GDP at 5% significance levels. It was further observed that no short run relationship existed, in line with the conclusions observed under the ARDL model. This confirms the low predictive power of the OLS models observed under 5.3 above. In addition, it can be noted that there was no significant Granger causality from FDI to manufacturing exports, from manufacturing exports to FDI, from FDI to GDP, from GDP to FDI, from GDP to manufacturing exports, and from manufacturing to GDP.

The results of the Granger causality test are in line with studies undertaken by Belloumi (2014), which found that there were no individual Granger causality relationships between independent variables such as from trade to FDI or from FDI to trade or from FDI to GDP or from GDP to FDI or from trade to real GDP per capita or from real GDP per capita to trade. The results support the study's assumptions that growth in manufactured exports should be supported by growth in technological advancements due to increased investment through FDI, stable inflation rate to ensure that costs of production is sustainable and improved performance of GDP signaling the growth of the wider economy.

CHAPTER SIX
RESEARCH CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the research findings in view of the estimation techniques used. It attempts to explain any potential deviations from assumptions made and their implications. In addition, it provides the policy implications of the study and suggests possible recommendations for future policy development and implementation.

6.2 Research Findings

The growing need to industrialise has seen much emphasis placed by the Government of Zambia to improve the production and export of value addition products to the rest of the world. The export revenues gained are not only expected to sustain balance of payments but also support the government's developmental agenda. It was therefore important that key variables, namely GDP, FDI, national savings, lending rates, inflation rate and exchange rates and their effect on exports in manufacturing sector were studied. The study acknowledges that there are some variables that were not included within the models, but could affect the export capabilities of the manufacturing sector. Nonetheless, it is important that the fundamentals that support the growth of any sector are closely tracked and managed for the sustainable growth of the economy. The study utilised both the OLS and ARDL estimation techniques using secondary data from the period 1970 to 2015.

The econometric results showed that inflation was significant across the OLS and ARDL model. The models were in line with the assumptions made that inflation would negatively affect exports in the manufacturing sector. A percentage change in inflation rate would lead to a decrease in exports in the manufacturing sector by 22%. In addition, it was observed that FDI was statistically significant and positively related to exports in Zambia's manufacturing sector in the long run. In this regard, a change in the FDI would increase exports in the manufacturing sector by 48%. This is in line with assumptions made and studies conducted by Were (2002) and Mahadevan (2009), which found similar positive significant relationship with exports.

The OLS model revealed that GDP was statistically insignificant. This is contrary to expectations that GDP was expected to have a significant and positive effect on exports in the manufacturing sector. Though insignificant, it was observed that the variable had a positive

effect on exports in the manufacturing sector. This may reflect the low levels of attention paid to improving investments in the economy and strengthening the backward and forward linkages. In this regard, the growth of the manufacturing sector has stalled as compared to other sectors, such as the mining sector, over the last 5-10 years. In addition, Zambia's membership to multiple RECs could have affected GDP's effect on the exports in the manufacturing sector. The results obtained are similar to those of Skosana and Kabuyab (ND), which concluded that GDP was insignificant in explaining exports' performance of Switzerland due to the smallness and openness of the economy. Zambia is a member of two of the region's biggest RECs i.e. COMESA and SADC. Because of this membership, various trade liberalisation programmes are being implemented including tariff liberalisation under the FTA and Customs Union. This could have contributed to the low predictive power of the model and variables like GDP.

The exchange rate indicator was observed to be non-stationary at various levels. It was therefore necessary to exclude the indicator from the models, as this could lead to spurious results. In addition, the exchange rate was also excluded from the final models to enhance the overall fitness of the models.

It was further observed that the lags of FDI, GDP and Inflation rate jointly caused exports in the manufacturing sector in the long run. In addition, joint lags of exports in the manufacturing sector, FDI and inflation rate caused GDP. It was further noted that individual lagged variables did not affect export performance in the manufacturing sector.

6.3 Policy Implications

Industrialisation remains Zambia's key objective, as provided in the vision 2030. Several countries have used various approaches to bring about industrialisation. In Zambia's case, direct efforts and policies are being developed, focusing on strengthening the export of value added products from the manufacturing sector. It is expected that as exports in the manufacturing sector grow, better technological transfer will take place, leading to value addition, increased exports and sustained economic growth. To achieve this, the government needs to gain greater appreciation of the potential factors that could bring about a favourable environment for the growth of manufacturing exports.

With inflation negatively affecting exports in the manufacturing sector, the government should undertake prudent policies to effectively manage money supply in the economy. It is widely accepted that the optimal inflation rate should between 0% and 3% (Adam and Weber, 2017)[13]. This can be done through fiscal and monetary policies in the economy. Consideration of any potential bearings on national debt requirements and private sector growth should be central to developing sectoral policies that enhance the manufacturing sector. We can therefore note that poor managed macroeconomic environment could lead to an added interest rate; solvency and exchange rate risks which SMEs and large enterprises will have to factor in their projections.

Given the limited investment within the economy, government has continued to rely on FDI inflow to support development objectives. As expected, the increase in FDI positively affects exports in the manufacturing sector in the long run. Whilst policies have been implemented to strengthen FDI inflows into the country with the implementation of MFEZs and provision of tax exemptions, greater efforts need to be made. The government has been heavily criticised for not supporting indigenous firms with the same tax exemptions afforded to foreign firms. This, coupled with stringent accessibility to resources from financial institutions, has crippled the growth of most indigenous firms in the manufacturing sector.

The government should be commended for being a member of Multilateral Investment Guarantee Agency (MIGA) as this has facilitated for insurance of investments exceeding over US$ 200 million, with US 80 million channelled in the agricultural sector (MIGA, 2018)[14]. This is important especially for mitigating risks against transfer restriction, expropriation, war and civil disturbance. Greater emphasis should be placed on sensitizing business owners and investors on MIGA, and the potential benefits that can be derived. This will create a better platform for improved FDI inflows.

With the manufacturing sector only contributing an average of 7.5% of overall GDP in the past 5 years (WDI, 2016), the findings of the study that GDP is statistically insignificant is not surprising. As the economy industrialises and exports increase in the manufacturing sector, it is expected that the manufacturing sector's contribution to GDP will increase. It is therefore important that government gives priority to developing the industrial base, particularly focusing on manufacturing. This is mainly because the sector has huge potential for both backward and

[13] http://voxeu.org/article/how-firm-productivity-impacts-optimal-inflation-rate
[14] https://www.miga.org/Lists

forward linkages, which will as a result contribute to the development of other sectors of the economy.

6.4 Research Recommendations

The study focused on examining the determinants of export performance in Zambia's manufacturing sector. This was to ensure that government puts in place relevant policies that support the growth of the sector to enhance value addition of exports. It is expected that the higher the value addition, the greater the price of exports on the regional and international market. Not only will this increase foreign exchange revenues, but will facilitate the diversification of the economy away from copper dependence.

If Zambia is to attain this, the study reveals that Inflation and Foreign Direct Investment has a key role to play. The government of Zambia must ensure that monetary policies are effectively managed to ensure that inflation is kept within manageable levels. Key to this is ensuring that the Central Bank is independent and given full mandate to manage money supply without any political interference. In addition, the government should ensure that adequate measures are put in place to facilitate prudent fiscal management.

Furthermore, policies that drive private sector growth in the manufacturing sector should be highly encouraged. For instance, greater tax exemptions for both local and foreign investors should be implemented as a priority. This should coincide with greater investment by government in transport, ICT, and energy infrastructure across the country. Ndaba (2015) notes that tax exemptions in Zambia's Mining sector did not contribute to Zambia's economic growth. In this regard, the government should consider shifting the prominence of tax exemptions from the mining to manufacturing sector. In addition, capacity building initiatives through programmes such as the CEEC must be undertaken to train both local and foreign investors on risk mitigation instruments including those offered by commercial banks (forward contracts, hedging), financial markets (futures, derivatives) and international organisations (Political risk cover by MIGA) among others.

The government must also ensure that adequate resource allocation is made to productive sectors of the economy like manufacturing, given the inherent linkages in the sector. This will convey a message of seriousness to potential foreign investors, which might in turn lead to additional private sector investment. In addition, government should put in place special

incentives for local investors to invest in the manufacturing sector, as this will complement foreign investment. Through monetary policy, the government should proceed to encourage the spirit of saving in the country. This will ensure that adequate resources are available for local investment.

Future studies could consider how a total shift of tax and duty exemptions, from Mining to Manufacturing, could affect the economic growth of the country.

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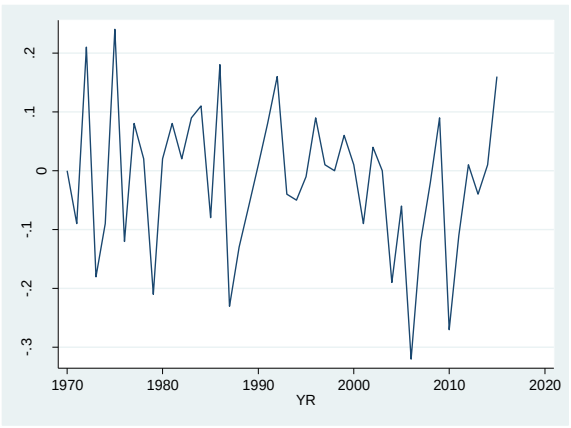
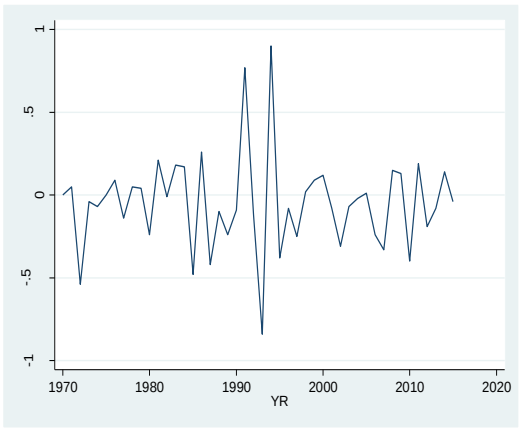
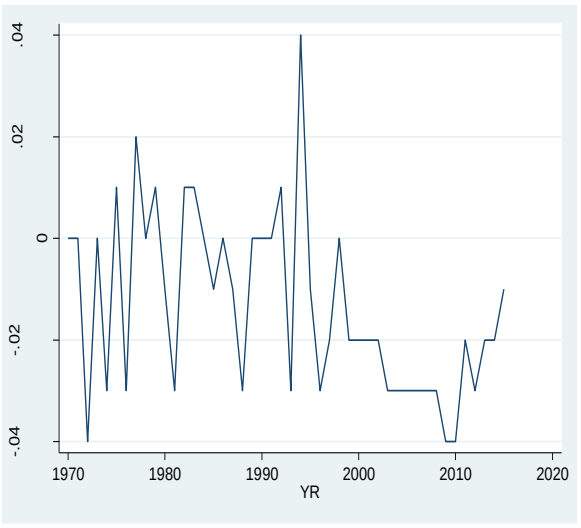
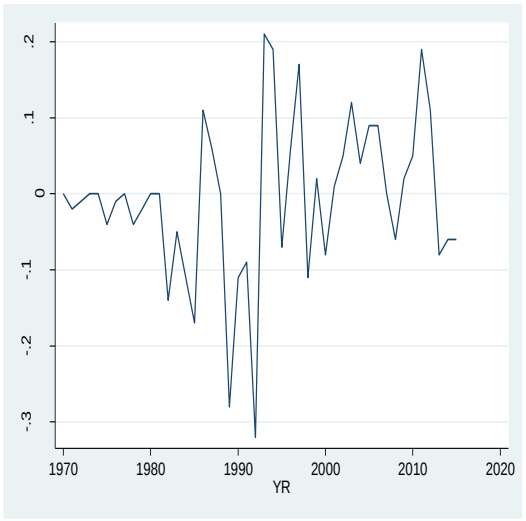
APPENDICES

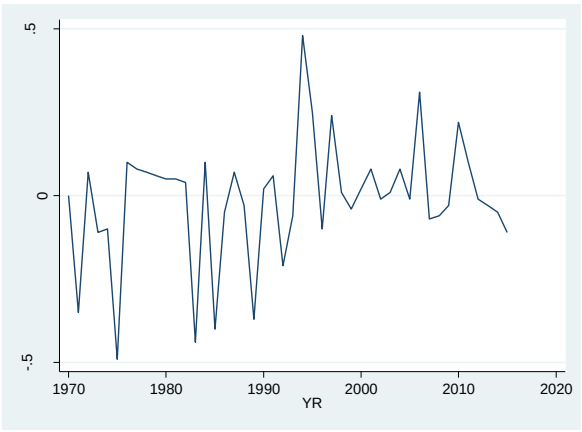
APPENDIX 1: LINE PLOTS

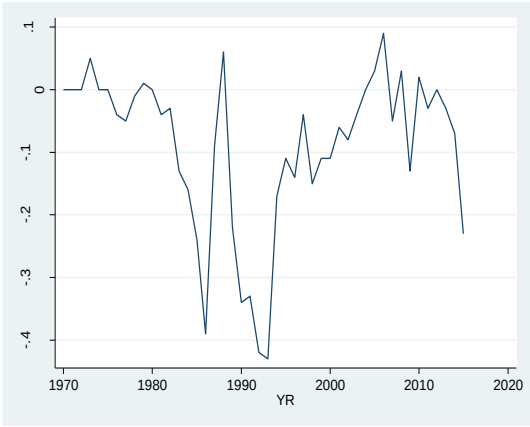






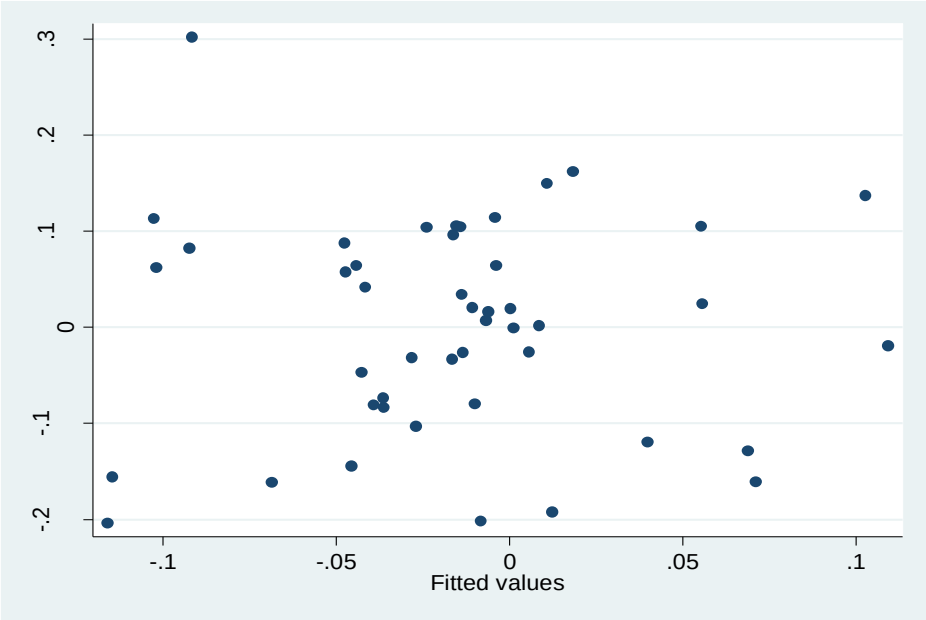




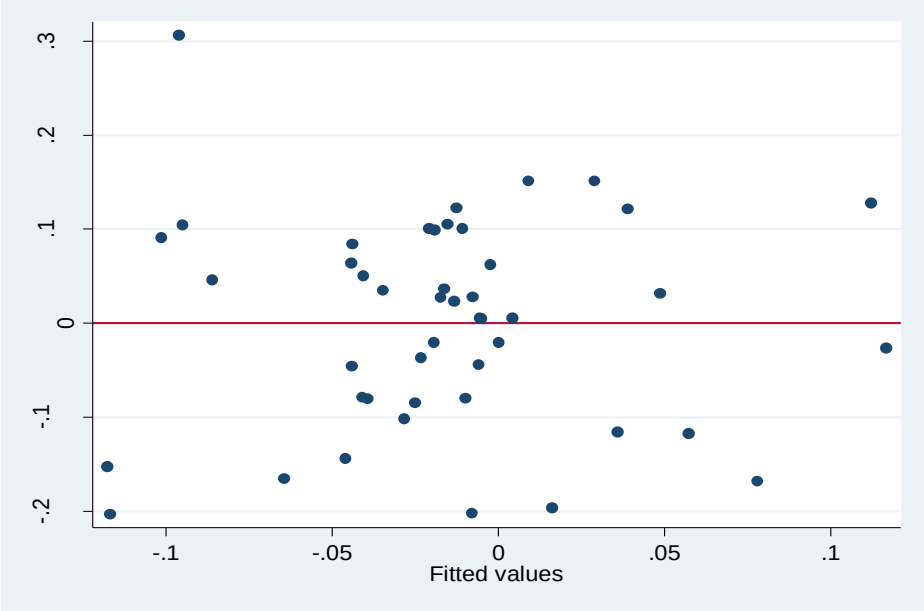


APPENDIX 2: RESIDUAL PLOT

OLS Model 1



OLS Model 2



APPENDIX 3: OPTIMAL LAG SELECTION

Exports in Manufacturing sector (maximum 6 lags)

Selection-order criteria
Sample: 1976 - 2015 Number of obs = 40

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	29.9686				.013756*	-1.44843*	-1.43316*	-1.40621*
1	29.9725	.00776	1	0.930	.014459	-1.39862	-1.36809	-1.31418
2	30.0388	.13257	1	0.716	.015153	-1.35194	-1.30614	-1.22527
3	30.24	.40253	1	0.526	.015777	-1.312	-1.25094	-1.14311
4	30.9887	1.4973	1	0.221	.015987	-1.29943	-1.2231	-1.08832
5	31.0469	.11639	1	0.733	.016774	-1.25234	-1.16075	-.999011
6	32.9805	3.8673*	1	0.049	.01603	-1.29903	-1.19216	-1.00347

Foreign Direct Investment (maximum 6 lags)

Selection-order criteria
Sample: 1976 - 2015 Number of obs = 40

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-8.66118				.094912	.483059	.498325	.525281
1	-4.73263	7.8571	1	0.005	.08199	.336632	.367164	.421076
2	-1.35065	6.764*	1	0.009	.072798*	.217532*	.263331*	.344198*
3	-1.20566	.28997	1	0.590	.076008	.260283	.321348	.429171
4	-.43601	1.5393	1	0.215	.076937	.2718	.348131	.48291
5	-.385937	.10015	1	0.752	.080758	.319297	.410894	.572629
6	-.166129	.43962	1	0.507	.084085	.358306	.465169	.65386

Gross Domestic Product (maximum 6 lags)

Selection-order criteria
Sample: 1976 - 2015 Number of obs = 40

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	104.601				.00033	-5.18003	-5.16477	-5.13781*
1	105.59	1.9779	1	0.160	.00033	-5.17948	-5.14895	-5.09504
2	107.734	4.2896*	1	0.038	.000311	-5.23672	-5.19092*	-5.11005
3	108.476	1.4829	1	0.223	.000316	-5.22379	-5.16273	-5.0549
4	110.08	3.2078	1	0.073	.000306*	-5.25399*	-5.17766	-5.04288
5	110.128	.09673	1	0.756	.000322	-5.2064	-5.11481	-4.95307
6	110.431	.60628	1	0.436	.000334	-5.17156	-5.0647	-4.87601

Inflation Rate (maximum 6 lags)

Selection-order criteria
Sample: 1976 - 2015 Number of obs = 40

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	14.3506				.030035*	-.66753*	-.652264*	-.625308*
1	14.3956	.08997	1	0.764	.031506	-.619779	-.589247	-.535335
2	14.4891	.18708	1	0.665	.032974	-.574456	-.528658	-.44779
3	14.7321	.48595	1	0.486	.034259	-.536605	-.47554	-.367717
4	15.0437	.62324	1	0.430	.035481	-.502186	-.425855	-.291076
5	16.6275	3.1676	1	0.075	.034494	-.531376	-.439779	-.278044
6	16.6283	.0016	1	0.968	.03631	-.481416	-.374553	-.185862

Appendix 4: ARDL Table

Dlogexp_mun	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ADJ Dlogexp_mun						
Lag 1.	-1.197149	.1855261	-6.45	0.000	-1.576593	-.817706
Long Run						
Dlogfdi	.4770084	.2305576	2.07	0.048	.0054652	.9485517
Dlogdg	1.873241	1.306494	1.43	0.162	-.7988387	4.545321
Dloginf_R	-.3222357	.1115801	-2.89	0.007	-.5504427	-.0940287
Short Run						
Dlogfdi						
D1.	-.3425195	.2433175	-1.41	0.170	-.8401597	.1551207
LD.	-.1482302	.1591056	-0.93	0.359	-.4736377	.1771772
L2D.	-.0274827	.0861268	-0.32	0.752	-.2036317	.1486663
Dlogdg						
D1.	-1.921336	1.714179	-1.12	0.272	-5.427226	1.584555
LD.	-1.94126	1.80454	-1.08	0.291	-5.631958	1.749439
L2D.	-1.545935	1.650341	-0.94	0.357	-4.921261	1.829392
L3D.	-.7658933	1.159527	-0.66	0.514	-3.137392	1.605606
Dloginf_R						
D1.	.1015651	.1086934	0.93	0.358	-.1207379	.3238682
_cons	.0327923	.0257689	1.27	0.213	-.0199109	.0854956

Appendix 5: GRANGER CAUSALITY WALD TEST

Equation	Excluded	chi2	df	Prob > chi2
Dlogexp_mun	Dlogfdi	1.6121	2	0.447
Dlogexp_mun	Dlogdg	5.7824	2	0.056
Dlogexp_mun	Dloginf_R	4.394	2	0.111
Dlogexp_mun	ALL	13.308	6	0.038
Dlogfdi	Dlogexp_mun	.49549	2	0.781
Dlogfdi	Dlogdg	1.394	2	0.498
Dlogfdi	Dloginf_R	.03492	2	0.983
Dlogfdi	ALL	2.693	6	0.846
Dlogdg	Dlogexp_mun	1.5314	2	0.465
Dlogdg	Dlogfdi	5.3918	2	0.067
Dlogdg	Dloginf_R	3.5104	2	0.173
Dlogdg	ALL	14.309	6	0.026
Dloginf_R	Dlogexp_mun	3.2695	2	0.195
Dloginf_R	Dlogfdi	4.3538	2	0.113
Dloginf_R	Dlogdg	.08791	2	0.957
Dloginf_R	ALL	6.5146	6	0.368

APPENDIX 5: STATA SYNTAX

Line Plots of transformed variables

. twoway (tsline Dlogexp_mun)
. twoway (tsline Dlogfdi)
. twoway (tsline Dlogdg)
. twoway (tsline Dloginf_R)
. twoway (tsline Dloglend_r)
. twoway (tsline Dlogexch_R)

Test for Normality

. sktest myresiduals, r
. sktest myresiduals2, r

Test for Unit Root

dfuller Dlogexp_mun, trend lags(0)
dfuller Dlogfdi, trend lags(0)
dfuller Dloggdp, trend lags(0)
dfuller DlogInf_R, trend lags(0)
dfuller DlogExch_R, trend lags(0)
dfuller DlogExch_R, trend lags(1)
dfuller DlogExch_R, trend lags(2)
dfuller DlogExch_R, trend lags(4)
dfuller DlogExch_R, trend lags(8)

Test for Multicollinearity

Model 1
. regress Dlogexp_mun Dlogfdi Dlogdg Dloglend_r Dloginf_R
. vif
.vce, corr
Model 2
. regress Dlogexp_mun Dlogfdi Dlogdg_r Dloginf_R
. vif
.vce, corr

Test for Heteroscedasticity

Model 1
. regress Dlogexp_mun Dlogfdi Dlogdg Dloglend_r Dloginf_R
. rvfplot
. estat hettest
Model 2
. regress Dlogexp_mun Dlogfdi Dlogdg Dloginf_R
. rvfplot
. estat hettest

OLS Model 1

. Dlogexp_mun Dlogfdi Dlogdg Dloginf_R, Dloglend_R

OLS Model 2

. Dlogexp_mun Dlogfdi Dlogdg Dloginf_R,

ARDL Optimal Lag Selection

. varsoc Dlogexp_mun, maxlag(6)
. varsoc Dlogfdi, maxlag(6)
. varsoc Dlogdg, maxlag(6)
. varsoc Dloginf_R, maxlag(6)

ARDL Regression Model

. ardl Dlogexp_mun Dlogfdi Dlogdg Dloginf_R, lags(. 3 4 .) ec regstore (lutreg)
. ardl, noctable btest

Granger Causality test

.vargranger